AN ASSESSMENT OF WATER POLLUTION CONTROL IN THE CITY OF LONDON

Ontario

Ministry of the Environment

AN ASSESSMENT

OF

WATER POLLUTION CONTROL

IN THE

CITY OF LONDON

Regional Engineers Section

Sanitary Engineering Branch

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INTRODUCTION

For the past ten years, the City of London has been proceeding with a program of sewage treatment plant and sewer construction. This program has resulted in the expansion of all of the municipal sewage treatment plants and the construction of extensive trunk and local sanitary sewers.

The purpose of this report is to review the state of the City's storm sewer system, sewage treatment plant operation and subdivision development to provide both the City of London and the Ministry of the Environment with up-to-date data on pollution problems so that future construction priorities can be established.

The quality of the Thames River itself is being studied in a survey of the entire Thames River watershed which is presently being conducted as a joint study between the Ministry of Natural Resources and the Ministry of the Environment. One section of the report of that survey will cover the effects of discharges from the City on the Thames as it passes through London and will make recommendations regarding future water pollution control plants.

SUMMARY AND RECOMMENDATIONS

The survey of the City of London storm water drainage system was conducted mostly under dry weather conditions. A total of 165 (see Appendix II for sample results and field observations) storm water outfalls were examined and field observations recorded. Actually sampled were 107 outfalls and these samples were examined for the common water pollution parameters. Time constraints restricted sampling to one series only and as a result these may not be representative of the outfalls under all conditions. However, sufficient pollution indicators were found to show that problems requiring further attention by the City do exist in each sewerage area.

A review was also made of the operation of the municipal water pollution control plants. The facets of these operations checked were the flows, plant capacities and treatment efficiencies.

Subdivision development within the City was also reviewed and related to available sewage treatment plant capacity in each of the five sewerage areas. As well a review was made of the Capital Works Budget to determine the dates of the proposed plant expansions.

From the survey, it was revealed that the City of London has achieved a significant reduction in the pollution loads being directed to the Thames River, but it is also apparent that the task is not yet completed. Of the 107 outfalls sampled in the City of London 72 were found to contain one or more parameters which did not meet the City sewer use By-Law. Perusal of the sample results indicated that many of these discharges were of a limited nature probably caused by a few illegal connections. The City should endeavour to locate and eliminate all improper connections.

It is realized that the location and elimination of all of these discharges is not easy but with a properly organized program of sampling and dye testing the improper storm sewer connections can be gradually removed.

It was also determined that in general, the City sewage treatment plants function efficiently most of the time but periodically certain of the plants are being upset either by excessive hydraulic loads caused by stormwater infiltration into the sanitary sewer system or by the input of toxic industrial wastes.

Generally, the City has managed to keep pace with ever-increasing demands for sewage treatment plant capacity being placed on it. However, the survey revealed that additional capacity is required immediately at the Pottersburg and Adelaide plants if this trend is to continue. The design of an expansion for the Pottersburg plant is presently underway. Present City plans call for the commencement of the design of the Adelaide plant expansion in September of this year. In light of the existing overload and the extensive approved development in the area, expansion of this plant is needed immediately. Similar problems appear to be developing at the Greenway plant, which while having a reserve at present is rapidly approaching its design capacity of 18.3 MGD. At present sufficient subdivisions have received Council approval that will generate flows which could exceed this capacity by 2 MGD. It is noted that the Capital Works Budget calls for expansion of this plant to 21.3 MGD by 1974 and the design of the works is underway at present. Therefore careful subdivision control will be required in order not to exceed the plant capacity prior to expansion. This program must be kept on schedule and may have to be accelerated. The situation might be further aggravated if it becomes necessary to direct flows from the Vauxhall Sewerage area to Greenway. The south branch of

the Thames River which receives the treated wastes from the Pottersburg and Vauxhall plants is already showing the effects of these effluent discharges. Therefore, it would appear that a higher degree of treatment, the elimination of the discharges from the Vauxhall plant, and.or the diversion of some of the flows from the east end industrial park may be required. More information on this will become available once the Thames River basin study currently being conducted by Ministry staff is completed. It is understood that the City is also working on this problem by examining methods of reducing flows and improving treatment efficiencies.

RECOMMENDATIONS

1) The City should initiate a program of checking the effluent quality from all of the outfalls tabulated in the report which do not meet the sewer use bylaw criteria.

2) Rigid enforcement of the City's sewer use bylaw #W731-137 is required to eliminate upsets at the sewage treatment plants particularly at Vauxhall and Pottersburg.

3) The City should exercise extreme care in the approval of development within its boundaries to ensure that the sewage flows generated will not exceed plant capacity.

4) The design and construction of the next Adelaide plant expansion should be proceeded with immediately and no further development should be approved until sewage treatment plant capacity is available.

5) If sewage flows, which will continue to increase in volume as the development of the industrial area advances, cannot be treated at the Pottersburg plant due to the limited assimilation capacity of the South Branch at this point, the City will need to explore other alternatives such as diverting flows to another sewage area for treatment.

6) Infiltration studies should be undertaken in those areas with separated sewer systems which still produce excessively high flows during periods of rainfall or runoff. Particular attention should be paid to the Northridge and Sherwood Forest areas.

7) Sewer separation in the core area should continue.

8) The City should increase the frequency of its maintenance of the sanitary sewer relief points in order to minimize overflows caused by blockages from debris. Particular attention should be paid to the overflow pipes at Stanley Street and those discharging into the Elmwood Avenue storm sewer.

SURVEY PROCEDURES

Outfall Sampling

There are approximately 183 outfalls on record which discharge to the local watercourses within the City of London. During the survey, some of these could not be found due to the fact that they were submerged, obscured by foliage or debris, or were not at the location indicated in the records. Each outfall that could be located in the field was examined for size and the quantity and quality of any flow was estimated.

Samples were collected at the points where the storm sewers discharged to the local watercourses. They were analyzed for water pollution indicators, namely, BOD_5 (5-Day Biochemical Oxygen Demand), suspended solids, Kjeldahl nitrogen, total phosphorus, fecal and total coliforms. A detailed explanation of each parameter is included in Appendix I.

In the Province of Ontario, each municipality is responsible for the quality of the water discharging from its sewerage system to the local watercourses. The City of London By-Law #W-731-137 regulates the discharge of industrial, commercial, institutional and residential wastes into the municipal storm sewerage system by establishing maximum concentrations of the following parameters:

BOD_5	-	15 ppm.
Suspended Solids	-	15 ppm.
Total Coliforms	-	2400/100 ml.*

*ONE CHANGE IN THE COLIFORM CRITERIA FOR RECEIVING WATERS RECENTLY ADOPTED BY THE MINISTRY REDUCES THE ACCEPTABLE LEVEL OF COLIFORM ORGANISMS FROM 2400 TO 1000 PER 100 ML. A COMPLETE EXPLANATION OF THIS CHANGE IS PRESENTED IN APPENDIX I, PAGE 38.

Time constraints restricted Ministry staff to one series of samples and the results of these samples may not be representative of the true quality of the outfalls under all conditions. However, sufficient evidence was found to clearly indicate that domestic wastes are gaining access to certain sections of the storm sewer system. Therefore, having been provided with these preliminary results, it is expected that the municipality will initiate the appropriate action to remedy the situation and assure itself that its sewer discharges are of an acceptable quality, that is, within the limits set out in the City By-Law #W-731-137.

Review of Water Pollution Control Plants and Their Tributary Areas

The City of London owns and operates five water pollution control facilities, Oxford, Greenway, Adelaide, Vauxhall, and Pottersburg. The Sherwood Forest treatment works are privately owned and have been phased out of operation now that the Medway trunk sewer has been completed. The plants are all of a conventional activated sludge type utilizing both diffused and mechanical aeration. Sludge generated is filtered and disposed of by either incineration or in a landfill site.

Data showing sewage flows and the results of samples analyzed in the City laboratory were reviewed to assess the treatment capacities remaining in each facility based on average daily flows in 1972 and to determine each plant's efficiency.

Residential Development Review

During recent years this Ministry has adopted a procedure of undertaking a more detailed review of Subdivision development as it relates to sewage treatment plant capacities. Its aim is to guide development in such a manner as to prevent if possible or at least minimize overload situations in municipal sewage treatment plants.

An inventory of applications for residential development in the municipality (complete up to September 1, 1972) was provided by the City of London Planning Department. Data on housing units contained in the inventory are divided into four categories:

A. Approved for development by the Ministry of Treasury, Economics and Intergovernmental Affairs but not constructed.

B. Approved for development by City Council only.

C. Approved in principle by City Council.

D. Application on file.

Projects contained in the first three categories have received approval from the municipality thereby indicating a commitment by Council to provide the necessary services. The items in the fourth category, applications on file, have not received Council's approval and therefore will not be included in the discussions involving remaining capacities. As a result of earlier meetings with City staff, we are pleased to note that up-to-date data from the Planning Department is now being reviewed semi-annually by the Sanitation Section of the City Engineer's Department. This data forms part of the criteria used in planning plant expansion.

Each of the above categories contains three types of housing units: a) singles and semi-detached, b) row houses and c) apartments. The population density characteristic of each unit suggested by the City Planning Department is as follows:

A.	Singles and semi-detached	-	4.0 persons per unit
B.	Row Houses	-	3.5 persons per unit
C.	Apartments	-	2.5 persons per unit

Based on current design standards and average flow data from the municipality a per capita sewage flow of 100 gallons per day can be expected. Therefore, by using this data anticipated sewage flows which will be generated by the new developments in each of the sewerage areas were calculated and have been tabulated. The future flows were then compared to the present available sewage treatment plant capacities. This comparison is tabulated in Table IV, Appendix V. In this survey, this information has been compared to existing plant capacity and related to presently projected expansions as outlined in the 10-Year Capital Works Budget.

OXFORD SEWERAGE AREA

Survey Results

The Oxford sewerage area is bounded on the north, west and south by the municipal boundaries and on the east by a line running from Oakridge Collegiate diagonally across Hyde Park Road to Riverside Drive and then crossing the Thames River east of North Talbot Road. The storm sewer system serving this area was largely constructed as a separate system and consequently few pollution problems were anticipated. There are five points of discharge to the Thames River and all were sampled during the survey. The sample locations are shown on the accompanying map (Number 1) and a complete tabulation of the results and field observations is included in Appendix II, pages 42 to 43.

The discharge from two of these outfalls showed significant levels of coliform contamination, indicating that sanitary wastes from a few illegal connections are gaining access to the storm sewer system. The trickle discharge from the 15-inch diameter storm sewer outfall at the north-west corner of the Byron Bridge (Sampling Point 0-4) appeared to contain laundry wastes because of the murky colour and characteristic odour. These wastes probably originated from an adjacent private house. The sample analyses results (BOD_5: 8.5 ppm, suspended solids: 80 ppm, total coliforms: 129,000 per 100 ml) tended to confirm the presence of an illegal domestic connection.

The large 48-inch diameter sewer outlet located on Oxford Street just beyond the turnoff to the Hunt Club was discharging approximately 10 gallons per minute at the time of the survey. Samples were collected at the beginning of the open portion of this drain approximately 500 feet from the point at which it ultimately discharges to the Thames

River. The results of these samples, even though the discharge was relatively clear, did reveal the presence of significant levels of bacteriological pollution indicators (fecal coliforms: 9,000 per 100 ml., total coliforms: 18,000 per 100 ml.). While these results are not as conclusive as those collected from Sampling Point (0-4), they do definitely indicate the presence of sanitary wastes in the sewerage system. Therefore, the area tributary to both of these sewers should be investigated to ensure that all domestic wastes are directed to the sanitary sewers.

Treatment Works

Pollution control for the Oxford sewerage area is provided by means of a 1.5 MGD mechanically aerated activated sludge plant located at the foot of Oxford Street. The operational data collected at this plant in 1972 and appended in Table VIII Appendix IV was analyzed and revealed that on the average, the effluent contained BOD_5 and suspended solids concentrations of 12 ppm. These concentrations are well within the Ministry's objective of 15 ppm for both BOD_5 and suspended solids. The flows during this same period averaged 0.74 MGD or 49% of plant capacity, these flows are summarized in Table VII, Appendix III. Therefore, based on the average daily flow, an additional daily flow of 0.76 MGD can be treated in this plant without overloading it.

Residential Development

Planning Department information (Table I, Appendix V) indicates that there is very little pressure to develop in the area served by the Oxford sewage treatment plant at this time. The 291 housing units

already approved for construction and the additional 159 units that have received Council's approval, when completed are expected to generate an additional 0.18 MGD. This flow can be easily accommodated at the present plant.

A review of the Capital Works Budget indicates that the construction of a major plant is proposed for this area in conjunction with the City's long range plans for re-directing sewage from the core area of the City via the Thames River interceptor sewer. This will occur once the ultimate capacity of the Greenway Pollution Control Centre has been reached.

GREENWAY SEWERAGE AREA

Survey Results

The Greenway sewerage area is the largest in London. It is bounded on the north and south by the municipal boundaries and on the east by a line stretching from the Westminster Ponds to Wolsley Barracks, and then approximately north-west to Highway 22 west of Masonville. The westerly boundary is a line from Oakridge Collegiate across the Thames River to North Talbot Road. This area is outlined on map Number 2, appended to this report.

This sewerage area is comprised largely of the older built-up portions of the City of London but does have several large new subdivisions such as Westmount, Cleardale, and Westminster Park on its southern perimeter and Whitehill's Sherwood Forest and Orchard Park to the north-west. Because of the dual nature of the area, it is serviced partially by combined sewers and partially by separated storm and sanitary sewer systems, the combined being in the core area and the separated systems being in the newer subdivisions. As a result of this, the possibility of sewage gaining access to the storm sewer system in the older area of London is much greater than probably any other part of the City and as will be seen later, the sample analyses results included in this section tend to confirm this.

Available City records indicate that 97 points of discharge to the Thames River and its tributaries exist in this part of the City of London. In all 58 outfalls were sampled and 46 were found to be discharging material having concentrations in excess of the Municipal By-Law criteria. For ease of discussion and comprehension, the whole sewerage area has been divided into four smaller sections: the Thames River main branch, Thames River north branch, Thames River south branch and Dingman Creek. These will each be discussed separately.

Main Branch

This section of the Greenway sewerage area is comprised of that portion of London downstream from the confluence of the north and south branches of the Thames to a point near St. Anthony's Road in Hazelton Park. Of the 24* outfalls sampled in this section several were discharging material in contravention of the Sewer Use By-Law. For example, the 60-inch diameter concrete storm sewer located adjacent to Elmwood Avenue (Sampling Point G-34) was discharging sanitary sewage to a surface drain which flows into the coves. The sample analyses results (BOD_5: 22 ppm, fecal coliforms: 11,000 per 100 ml, total coliforms: 380,000 per 100 ml), confirmed this field observation. The flow from this sewer was estimated to be approximately 40 GPM even though the weather was sunny and dry. However, in the three days prior to this a total of 0.47 inches of rain fell. Therefore, it would appear that what was occurring was the scouring of accumulated wastes deposited throughout the sewerage system tributary to this outfall. The City should determine the sources of domestic wastes discharging to this sewerage system which could include the unnecessary overflow at relief points as well as illegal house connections and eliminate this significant pollution load to the coves.

Two storm sewer outfalls discharging to the Thames River at the Wharncliffe Road bridge also appeared to contain domestic wastes. In the first case, the 18-inch storm sewer on the south side of the

*SEE APPENDIX II, PAGES 44 TO 55, FOR ANALYSES RESULTS AND FIELD OBSERVATIONS.

bridge (Sampling Point G-36) was discharging murky coloured material which was probably largely surface runoff. However, the bacteriological results of samples collected revealed high fecal coliform densities (1400 per 100 ml) which indicates that sanitary wastes are definitely gaining access to the storm sewer system. The other outfall (Sampling Point G-37) a 42-inch diameter sewer located on the north side of the river was also discharging a murky material. Analyses showed BOD_5: 20 ppm, fecal coliforms: 1800 per 100 ml, total coliforms: 90,000 per 100 ml suggesting the presence of domestic wastes. In both cases, it is recommended that any illegal connections to the storm water systems be located and severed.

The sample analyses results from the outfalls listed below showed significant coliform densities but low BOD_5 concentrations. However, some had relatively high nutrient concentrations (nitrogen and phosphorus) again indicating that polluting materials are entering sections of the storm water systems.

SAMPLING POINT	LOCATION	FECAL COLIFORMS per 100 ml	TOTAL COLIFORMS per 100 ml
G-16	Discharge to Thames River at Warren Road	4,000	35,000
G-18	Discharge to Thames River from Darlene Crescent	-	15,000
G-20	Discharge to Thames River at Wildwood Avenue	3,500	110,000
G-21A	Discharge to Coves at north-west corner of Springbank Drive bridge	-	240,000
G-21B	Discharge to Coves at south-west corner of Springbank Drive bridge	-	50,000

SAMPLING POINT	LOCATION	FECAL COLIFORMS per 100 ml	TOTAL COLIFORMS per 100 ml
G-24	Discharge to Coves at Greenwood Avenue	180	1,200
G-26	Discharge to surface drain tributary to Coves at Hazelwood Avenue	-	12,000
G-26	Discharge to surface drain tributary to Coves at Base Line Road and Beachwood Avenue	-	60,000
G-27	Discharge to surface drain tributary to Coves at Commissioner's Road and Viscount Road	-	4,800
G-30	Discharge to Thames at Forward and Woodward Avenues	2,000	70,000
G-31	Discharge to surface drain at Barry Place	390	3,200
G-35	Discharge to Coves at Elmwood Avenue	2,500	1,400,000
G-117	Discharge to surface drain on Oxford Street West at the CNR bridge	390	8,000
G-119B	Discharge to surface drain on Oxford Street West at Arrow Car Wash	540	12,000
G-120	Discharge to surface drain at Cherry Hill Circle	1,500	30,000

North Branch

The area tributary to the north branch extends from the confluence of the north and south branches of the Thames upstream almost to Adelaide Street. It was found that generally speaking the discharges taking place from the 13* outfalls sampled in this section of the Greenway sewerage

*SEE APPENDIX II, PAGES 56 TO 67 FOR SAMPLE ANALYSES RESULTS AND FIELD OBSERVATIONS.

area met the By-law criteria. However, the presence of coliform and fecal coliform organisms in several of the sewer discharges does indicate that there are minor pollution problems probably caused by illegal sanitary connections. Therefore, the areas tributary to the outfalls listed below should be investigated and domestic wastes should be directed only to the sanitary sewers.

SAMPLING POINT	LOCATION	FECAL COLIFORMS per 100 ml	TOTAL COLIFORMS per 100 ml
G-126	Discharge to the Thames at John Street	1,490	67,000
G-127	Discharge to the Thames at Mill Street	700	180,000
G-131	Discharge to the Thames at Grosvenor Street	800	21,000
G-134	Discharge to the Thames at Huron Street West bank	-	100,000
G-148	Surface drain at Sarnia Road and Bloomfield Drive	100	60,000
G-149	Discharge to Medway Creek at Wychwood Place	-	1,200
G-151	Discharge to drainage ditch at Gainsborough and Hutton Roads	-	1,500
G-156	Discharge to surface drain at William and Huron Streets	-	10,000

Sampling point G-134, located at the foot of Huron Street on the west bank of the Thames River had a very distinct petroleum distillate odour at the time of sampling. Extreme care should be taken in determining the source of this pollutant. In addition, sampling point G-156 located

at William and Huron Streets when sampled revealed fairly low levels of pollutants. Periodically, there have been reports that foam and oil are being discharged from this sewer. These discharges are of short duration and to date the source has not been located. Particular attention should be paid to this outfall and due to the intermittent nature of the discharges, careful monitoring of this outfall will be required if the source or sources of these pollutants are to be found and eliminated.

South Branch

The south branch of the Thames River extends from the confluence of the north and south branch east along the river to approximately Chesterfield Avenue in the Chelsey Green area and contains 19 outfalls 11* of which were sampled.

In this section of the Greenway sewerage area, a 12-inch storm sewer (sampling point G-42) located at Stanley Street was found to be discharging raw sewage to the Thames River at an estimated rate of 3 gpm. Laboratory analyses results (BOD_5: 180 ppm; fecal coliforms: 790,000 per 100 ml; total coliforms: 1,300,000 per 100 ml) confirmed these field observations. Further investigations revealed that a relief drain from a sanitary sewer discharges to the storm sewer outfalling at this location and on occasion the accumulation of debris in the sanitary sewer allows domestic wastes to escape directly to the river. City staff was immediately contacted and it was learned that the relief points from sanitary sewer systems

*SEE APPENDIX II, PAGES 68 TO 73 FOR SAMPLE ANALYSES RESULTS AND FIELD OBSERVATIONS.

are cleaned periodically and overflows of raw sewage to the river do not frequently occur at this point. However, discharges of this nature at any time can present very serious health hazards and create severe water pollution conditions. Consequently, the City should undertake a maintenance program in the area of each relief point to ensure that sewage does not discharge indiscriminately to area watercourses. Apparently, the relief sewer at Stanley Street is particularly troublesome because Ministry staff have visited the site on three occasions in dry weather and have found it discharging twice.

The 36-inch diameter storm sewer outfalling to the Thames River at the foot of Bathurst Street just south of the CNR bridge (sampling point G-43) was discharging large amounts of grey material. The results of laboratory analyses (BOD_5: 15 ppm; total coliforms: 110,000 per 100 ml) confirmed the earlier field observations that domestic wastes were being discharged into the storm sewer system. What is of equal concern is the fact that during the field investigations large amounts of foam were found adjacent to the outfall, perhaps indicating the injection into the storm sewer system of some form of industrial wastes. Since this sewerage system is in the older section of London, it is suggested that City staff examine the industrial and commercial premises in this area to ensure that domestic and industrial wastes are being discharged to the proper sewerage system.

A large outfall located at the north-east corner of the Adelaide Street bridge (sampling point G-69) was sampled and the analyses results (BOD_5: 36 ppm; fecal coliforms: 12,000 per 100 ml; total coliforms: 80,000 per 100 ml) demonstrate that domestic wastes are gaining access to the sewerage system tributary to this outfall. As well, the extremely

high fecal count would seem to indicate that sanitary wastes are probably originating from illegal connections in close proximity to the outfall.

In addition, a number of other outfalls when sampled were found to be within the chemical criteria of the By-law but contained excessive coliform counts. These points are listed below and should be thoroughly investigated by the City staff.

SAMPLING POINT	LOCATION	FECAL COLIFORMS per 100 ml	TOTAL COLIFORMS per 100 ml
G-45	Discharge to Thames at Ridout Street bridge south side	11,000	340,000
G-47	Discharge to Thames at South Street	1,900	23,000
G-49	Discharge to Thames at Front Street	3,800	60,000
G-51	Discharge to tributary of Thames at Weston Street	900	8,000
G-52	Discharge to Thames River at Brookside Street	10,000	22,000

Dingman Creek

The Dingman Creek subsection comprises that area in the south and south-west portion of the City that is included in the Dingman Creek drainage basin. Generally speaking, this area consists of relatively new homes either the result of new subdivisions constructed within the City of London or the recent development which occurred in the adjacent Township of Westminster prior to annexation. This section also includes the major industrial park located in the south-central portion of London. The sanitary sewage generated in this area is directed to the Greenway pollution

control centre via the Dingman pump station. Nine* outfalls located in this area were sampled.

Several small outfalls (sampling point G-40) located at Westdale Avenue near Wharncliffe Road South were discharging cloudy material which contained sanitary sewage. (BOD_5: 14 ppm; total coliforms: 210,000 per 100 ml). The domestic waste entering this drain probably originated from malfunctioning septic tanks in the residential area west of Wharncliffe Road. The City should require that proper septic tanks be installed in all residences in this area and if it is felt that these will not function properly, then sewer services should be provided.

A number of other outfalls containing significant concentrations of pollution indicators which will require further investigation by the City are tabulated below.

SAMPLING POINT	LOCATION	FECAL COLIFORMS per 100 ml	TOTAL COLIFORMS per 100 ml
G-39	Discharge to drain at Westbury Avenue and Estella Drive	-	370,000
G-59**	Discharge to drain at Easy Street and Southdale Road	9,500	110,000
G-60**	Discharge to drain at Verulam St. & Southdale Road	1,090	299,000
G-64	Drain sample at Bradley Avenue & Willow Drive	1,600	240,000
G-66	Discharge at Bradley Avenue & Adelaide Street	9,000	500,000
G-68	Discharge to drain at Exeter Road and Bessemer Road	4,900	15,000

* SEE APPENDIX II, PAGES 74 TO 79 FOR SAMPLE ANALYSES RESULTS AND FIELD OBSERVATIONS.

** THE DISCHARGE OF SANITARY WASTES FROM BOTH OF THE OUTFALLS SHOULD BE ELIMINATED ONCE SEWERING OF THE VLA SUBDIVISION AT WELLINGTON AND SOUTHDALE ROADS IS COMPLETED.

Treatment Plant

The Greenway pollution control centre serves this sewerage area. It consists of three separate plants sharing common influent and effluent structures. These plants were constructed as the needs of the City increased. At present, the total combined capacity of these plants is 18.3 MGD and an expansion to increase the capacity to 21.3 MGD is planned.

A review of operating data collected in 1972 revealed that on the average, the overall plant discharged an effluent containing BOD_5 and suspended solids concentrations of 13 and 18 ppm respectively. These data are contained in Table II, Appendix IV. The solids concentration while exceeding the Ministry objective of 15 ppm, probably is not representative of the present plant efficiency in removing solids. The large addition to the final settling tanks in Section #3 was completed in the fall of 1972 and since this tank was put into service, the suspended solids concentration in the effluent has been reduced to 12 ppm. It would appear that this addition will have a significant effect on the future efficiencies of this plant.

Perusal of the 1972 flow data summarized in Table II, Appendix III, shows that the average daily flow received at this plant last year was 17.16 MGD. This represents 93.7% of the design capacity. However, because of the combined sewer systems within the sewerage area, significant amounts of by-passing of the aeration section occur at Greenway from time to time. This partially treated sewage is disinfected with chlorine prior to discharge but still, by-passing should be avoided at all costs. This can be done in two ways. First, the City should continue with its sewer separation program in the core area and secondly, it should perform infiltration studies in separated sewer areas which show significant increases in

flow during periods of rainfall or runoff. One example of a sewage system which suffers from high infiltration is that which serves the Sherwood Forest area. The privately-owned plant which formerly served this area received flows three to four times the normal dry weather flow during periods of rain or runoff. This plant has of course been eliminated and all sewage is being directed to the Greenway plant. However, the infiltration problems have not been solved and consequently, the excessive flows of dilute sewage which are received from this area must still be pumped and treated. This means increased pumping costs and an unnecessary reduction in the remaining plant capacity at the Greenway pollution control centre.

With the exception of the by-passing of partially treated sewage at times, the operation of the Greenway pollution control centre is generally satisfactory.

Residential Development

Table I, Appendix V, shows that 11,664 housing units in the Greenway area have received OMB and Council approval. This number of units will generate an estimated additional flow of 3.5 MGD when completed, thus raising the average flow received at Greenway to about 20 MGD.

According to the Capital Works Budget, the City plans to expand the plant to 21.3 MGD in 1974. However, the studies presently underway on the Thames River watershed may result in a portion of the sewage now treated in the Vauxhall plant being diverted to Greenway. This could impose a substantial increase in the flows being received at this plant thus prematurely overloading it. This of course would mean that the scheduling for the expansion of the Oxford plant would have to be moved forward. Therefore, it is particularly important in this area that all proposed

subdivision development be carefully reviewed in light of existing capacity and scheduled expansion to ensure that an overload condition does not occur.

VAUXHALL SEWERAGE AREA

Survey Results

The Vauxhall sewerage area is bounded on the north by Oxford Street, on the east by Highbury Avenue, on the south by Southdale Road and on the west by a line from Westminster Ponds to Wolseley Barracks. It is shown on the accompanying map, number 3. This area is a mixture of old and new buildings, therefore, it was felt that sections of combined sewers would be found as well as other areas with completely separated systems.

City records examined during the course of the survey showed that the storm sewer systems serving this part of London discharge to local watercourses at 26 locations. However, three of these outfalls previously discharging into the Dayus Creek watershed had been replaced by a storm sewer along Southdale Road and three other widely separated discharges have been eliminated by further sewer construction. Of the remaining 20 outfalls, 10* were found to be flowing and were sampled.

The 36-inch diameter sewer located in a ravine north of the ends of Chesterfield and Veronica Avenues (sampling point V-73) was discharging to the Thames River at the rate of approximately 30 gpm. The analyses of the samples collected revealed a significant organic input (BOD_5: 32 ppm; and high coliform densities, 9600 fecal coliforms per 100 ml; and 160,000 total coliforms per 100 ml). The source of these wastes should be located and eliminated.

As well as the above sewer, four more outfalls had discharges that contained coliform and fecal coliform levels indicating the presence of domestic wastes.

*SEE APPENDIX II, PAGES 90 TO 97 FOR ANALYSES RESULTS AND FIELD OBSERVATIONS.

SAMPLING POINT	LOCATION	FECAL COLIFORMS per 100 ml	TOTAL COLIFORMS per 100 ml
V-58	Discharge to surface drain at Salvia Street	400	1,200
V-80	Discharge to the Thames River at Egerton Street	9,200	60,000
V-81	Discharge to surface drain at Thompson Road	4,000	4,800
V-95	Discharge to Pottersburg Creek at Stevenson Avenue	14,500	15,000

The chemical analyses results of samples collected from the above outfalls did not indicate severe organic loadings. Consequently, it would appear that there are probably continuous discharges of a minor nature into each sewer. An effort should be made by the City to isolate and eliminate these minor discharges.

Treatment Plant

The Vauxhall plant is is a conventional diffused air activated sludge plant located in the Thames River flood plain at the foot of Price Street. Although the nominal plant design capacity is 3.5 MGD, the treatment works on occasion receive flows of up to 8 MGD for short periods during heavy rain.

A review of the operating data collected in 1972 shown in Table XII, Appendix IV, reveals that the average BOD and suspended solids concentrations in the effluent were 24.0 ppm and 27.0 ppm respectively. This is in excess of the Ministry's objective of 15 ppm for both BOD and suspended solids. The summary of plant flows in Table XII, Appendix

III, showed that during 1972, the average daily flow was 3.4 MGD which is approximately 97% of the design capacity. On occasion, severe shock loadings of industrial wastes extremely toxic to the biological treatment system are received at this plant. This accounts in part for the low treatment efficiency. The City has investigated the suspected sources of these industrial discharges and is investigating the possible installation of pretreatment works at the offending industries. We cannot over emphasize the need for controlling industrial waste inputs into the sanitary sewer system and strongly recommend that London rigidly enforce the Sewer Use By-Law. It would appear that what is required is frequent inspection by City staff for by-law enforcement and it is our understanding that the City has expanded its staff recently in an attempt to achieve this.

In addition to controlling the industrial waste input to this plant, the City should locate and sever all unnecessary storm water connections to its sanitary sewage system.

Residential Development

The completion of the 435 housing units which have been approved for construction will produce flows of approximately 0.28 MGD as shown in Tables I and III, Appendix V bringing the total flow at the Vauxhall plant to approximately 3.7 MGD or 103% of capacity. There is no doubt that the poor efficiencies at this plant which are partially attributable to high flows will be even poorer once greater flows are being received.

London presently has allocated funds in its Capital Works Budget to eliminate this plant in 1975. The sewage from this area will either be directed to the Pottersburg or Greenway plants pending the findings of a

report being prepared by the Ministry on the Thames River. Preliminary studies for this report indicate that the south branch of the Thames River is heavily loaded with organic material at this time and that modifications either in treatment processes or a substantial reduction in flows from the tributary area may be required. The municipality is carefully reviewing its commitment for development in this area in light of the pending report in order that the situation is not further aggravated. It has already taken action by requesting that sewage from a subdivision proposed for this area be directed into the Greenway PCC sewerage system. However, as indicated earlier in the report this could use up enough capacity in the Greenway plant which could in turn necessitate the construction of the Thames River interceptor sewer and Oxford plant expansion sooner than presently forecast.

ADELAIDE SEWERAGE AREA

Survey Results

This area is bounded by the municipal boundary on the north, Clarke Side Road on the east, Oxford Street on the south and on the west by a line stretching from Wolseley Barracks north-west to Highway #22 west of Richmond Street as shown on the accompanying map, number 4. It is comprised largely of new subdivisions in the northern part of the City and is serviced by separate sanitary and storm sewerage systems. Since the sewers are relatively new, sanitary sewage should not be entering the stormwatersystem at any location.

Available records indicate the presence of 25 stormwater outfalls which discharge directly to the Thames River or its tributaries in the sewerage area. Seventeen* of these outlets were sampled and of these 9 were discharging material of unacceptable quality according to criteria contained in the municipal by-law. In the Stoney Brook Creek drainage area, two outfalls revealed the presence of domestic sewage. In the first case, the 18-inch diameter sewer located at the foot Daleview Crescent (sampling point A-162), the flow was estimated to be about 5 gpm and the discharge appeared to contain laundry wastes and sanitary sewage. Laboratory analyses results (BOD_5: 24 ppm; suspended solids: 50 ppm; total coliforms: 180,000 per 100 ml) verified these field observations. Since the area served by this sewer is relatively small and consists largely of Daleview Crescent, the detection of any illegal house connections should be relatively easy.

* SEE APPENDIX II, PAGES 80 TO 89 FOR SAMPLE ANALYSES RESULTS AND FIELD OBSERVATIONS.

The second sewer outfall which is of concern is the 12-inch diameter pipe located near Mapledale Avenue (sampling point A-161). While the discharge from this sewer was relatively clear, the laboratory analyses results disclosed the presence of significant levels of organic materials and high fecal coliform densities, (BOD_5: 14 ppm; suspended solids: 40 ppm; fecal coliforms: 13,900 per 100 ml; total coliforms: 49,000 per 100 ml). These results indicate that domestic wastes are gaining access to the storm sewer system and every effort should be made to eliminate all improper connections.

The 60-inch diameter sewer located at Greary Avenue (sampling point A-158) was discharging approximately 50 gpm of muddy water. Since this sewer is designed to accept the runoff from a rather large subdivision presently under construction, it is probable that the muddy water was due to the disruption caused by the house construction. However, the sample taken for bacteriological examination revealed the presence of what could be domestic wastes (fecal coliforms; 800 per 100 ml; total coliforms: 70,000 per 100 ml). In this case, it is suggested that the City sample this outfall periodically to determine if there is indeed a constant domestic waste input to the sewer.

At the foot of Country Lane, (sampling point A-168), a 24-inch diameter sewer discharges directly to the Thames River. Records indicate that this sewer drains the west half of Arbor Glen Crescent, Country Lane and Bridle Path. The flow at the time of the sampling was approximately 1 gpm and the discharge was relatively clear. However, the area near the mouth of the sewer was covered with black organic material characteristic of decomposing sanitary wastes. The bacteriological sample results

(fecal coliforms: 7,900 per 100 ml; total coliforms: 29,000 per 100 ml) did indicate the presence of domestic wastes and the chemical analyses results (BOD_5: 20 ppm; kjeldahl nitrogen: 10 ppm) confirmed the presence of a significant organic load. These results leave no doubt that there are illegal connections to the stormwater system somewhere in the drainage area.

The samples collected at five other points, which are tabulated below, revealed fairly high coliform densities. Chemical analyses results from the same outfalls did not indicate severe organic loadings and hence, it was concluded that the domestic waste discharges to the sewer while continuous are probably of a limited nature. Nevertheless, the City should make every effort to detect and eliminate all improper connections.

SAMPLING POINT	LOCATION	FECAL COLIFORMS per 100 ml	TOTAL COLIFORMS per 100 ml
A-138	Medway Creek at Canterbury Road	1,090	110,000
A-164	Discharge to Stoney Brook Creek at Lauderdale Avenue	280	13,000
A-171	Discharge to surface drain at Victoria Street	800	1,780
A-179	Discharge to surface drain at Magnolia Crescent	290	8,000

Treatment Plant

The water pollution control facility serving this portion of London consists of a 2.0 MGD conventional activated sludge plant located west of Adelaide Street at Kipp's Lane and discharging its effluent

to the north branch of the Thames River. This plant was initially constructed with a 1 MGD capacity and was expanded in 1971 to its present size after having operated for some time with an extremely high hydraulic overload. The operational data collected during 1972 (Table I, Appendix IV) showed that the average BOD_5 and suspended solids concentrations for that year were 19.0 and 24.0 ppm respectively. This exceeds the Ministry's recommended limit of 15 ppm for both suspended solids and BOD_5. A review of the flow data recorded for 1972 (Table I, Appendix III) reveals that the average daily flow being received at this plant was 2.74 MGD. This is more than 35% over plant capacity and is probably partly the cause of the reduced efficiencies noted above. It is also noted that instananeous flows on occasion at this plant have been estimated at 7 MGD during periods of thaw or heavy rain. It becomes obvious then that two major steps should be taken in this sewerage area. Firstly, a complete infiltration study should be carried out on the entire area with priority given to the section north of the north branch of the Thames River where we understand the most serious problem exists. In addition, the design and construction of the next expansion of this plant should be proceeded with immediately.

The City presently proposes to reduce the flows to the Adelaide plant by diverting some 0.25 MGD from the Windermere pump station to the Greenway plant and another 0.25 MGD from the Huron Heights pump station to the Pottersburg plant. However, the plant will still be overloaded, and serious consideration must be given to our earlier recommendations concerning the infiltration study and the plant expansion.

Residential Development

A review of the residential development data (Table I. Appendix V) discloses that 2,065 housing units located largely in the Stoneybrook-Masonville area have received all of the necessary approvals and construction can proceed at once. This development can be expected to increase the population in this sewerage area by about 5900 people and correspondingly increase sewage flows to the already overloaded Adelaide plant by an additional 0.6 MGD. Unfortunately even with the reduced flows mentioned earlier, the additional development will overload the plant by approximately 0.7 MGD.

Therefore, expansion is required immediately and until such time as additional capacity can be assured no further subdivision approvals should be granted. A review of the Capital Works Budget indicates that the design of the expansion is to begin in September of this year. However, in light of the above it is recommended that this program be accelerated.

POTTERSBURG SEWERAGE AREA

Survey Results

The Pottersburg sewerage area is bounded on the north, east and south by the municipal boundaries and on the west by Highbury Avenue. This area is shown on the accompanying map, number 5.

A detailed plan of the storm sewers serving the Pottersburg sewerage area shows 25 outfalls discharging to Pottersburg Creek and one to the Thames River. Three of these discharges to Pottersburg Creek have been replaced by new storm sewers in the Oxford Street, Falcon Street and Kiwanis Park Drive area. In all, 16* outfall discharges were sampled and of these 10 were found to contain waste concentrations in excess of the municipal by-law criteria.

The 14-inch storm sewer discharging to Pottersburg Creek at Gore Road (sample location P-86) was flowing at a rate of approximately 15 gpm into Pottersburg Creek. The sample analyses results revealed the presence of 40 ppm BOD_5 and 36,000 coliforms per 100 ml. Fecal coliforms were absent in the sample taken. It was discovered that the flow in this sewer was caused by street washing operations taking place on Eldorado Avenue. In this case, the absence of fecal coliform organisms indicates that there are probably no domestic wastes gaining entry to the system and that the results are characteristic of street flushing water and the flows in the storm sewer system immediately after the beginning of a rainfall.

Although the sample analyses results of the nine remaining outfalls had significant coliform counts, the low BOD_5 levels would suggest pollution

*SEE APPENDIX II, PAGES 98 TO 105, FOR SAMPLE ANALYSES RESULTS AND FIELD OBSERVATIONS.

of a minor nature caused by a few illegal sanitary connections. Therefore, it is suggested that the City examine the areas tributary to the outfalls listed below so that remedial action can be taken to eliminate the discharge of domestic wastes to the storm sewer system.

SAMPLING POINT	LOCATION	FECAL COLIFORM per 100 ml	TOTAL COLIFORMS per 100 ml
P-84	Discharge to the Thames River at Meadowlily Road	8,600	40,000
P-87	Discharge to the surface drain at Firestone Road	480	110,000
P-92	Discharge to surface drain at Balfour Place	36	11,500
P-96	Surface drain outfall to Pottersburg Creek at Moffat Avenue	4,400	39,000
P-98	Discharge to Pottersburg Creek at Brydges Street	530	370,000
P-102	Discharge to Pottersburg Creek at Allen Place	200	15,000

Treatment Plant

Pollution control in this sewerage area is provided by a 4.0 MGD conventional activated sludge plant located in the Thames River flood plain adjacent to Pottersburg Creek. The facility is made up of two separate plants, an older section with 1.6 MGD capacity utilizing diffused air and a newer mechnically aerated 2.4 MGD section which was completed in 1967. Both plants share common influent and effluent structures and discharge directly to the Thames River.

A review of the operational data collected during 1972, Table IX, Appendix III, indicates that the average daily flow was 3.55 MGD which is 89% of the design capacity. The addition of 0.25 MGD directed from the Adelaide sewerage area will increase the hydraulic loading to approximately 3.80 MGD, leaving a small reserve capacity of 0.2 MGD.

A summary of the 1972 sample analyses data (Table IX, Appendix IV) revealed that the average BOD and suspended solids concentrations in the treated effluent were 27 ppm and 31 ppm respectively. These figures exceed the Ministry's recommended objectives of 15 ppm for each. This poor quality effluent could partly be attributed to the operational problems caused by insufficient capacity for holding sludge. The accumulation of sludge apparently caused bulking in the final clarifiers and consequently, increased BOD and suspended solids concentrations in the treated effluent. In addition, industrial wastes which are difficult to treat are received on occasion at this plant and upset the biological system.

The City staff is aware of these problems and is taking, or has taken positive corrective action. In the first case, additional sludge handling facilities have been constructed and in the second case, pretreatment works are being installed by certain companies to control the industrial waste input. However, as indicated in the Vauxhall area, stringent enforcement of the industrial waste by-law is required so that biological upsets do not occur.

Residential Development

This sewage area is particularly important to the City of London since it serves most of the east end industrial park. At present, the OMB and City Council have approved the construction of 333 housing units

which it is projected will increase the flows to this plant by 0.17 MGD on the average. Therefore, the present remaining capacity is virtually all committed.

This means that the Pottersburg plant will have to be expanded to allow the development of the industrial area to the north-east and there could be severe limitations placed on the size and type of expansion which can be constructed at this point. At present, the City has received permission to and is proceeding with the expansion of this plant to 5.2 MGD. The Ministry has added the stipulation that the City will be expected to construct tertiary treatment works for the plant if the Thames River basin study indicates that this additional facility is required.

The plans for further expansion beyond this level are tentative and will be finalized once the earlier mentioned study on the river basin has been completed. However, it should be recognized that the assimilation capacity of the South Branch of the Thames is limited and development at the east end industrial park should proceed with this in mind in order to avoid the costly rerouting of sewage which will be necessary once the ultimate assimilation capacity of the river has been reached.

APPENDIX I

SIGNIFICANCE OF LABORATORY RESULTS, ABBREVIATIONS AND SYMBOLS

APPENDIX I

SIGNIFICANCE OF LABORATORY RESULTS, ABBREVIATIONS AND SYMBOLS

All the laboratory tests included in this report were performed at the Ministry of the Environment laboratories in London.

I. LABORATORY ANALYSES

A. Bacteriological Examination

TOTAL COLIFORM organisms include a wide variety of bacteria ranging from the genus (group) Escherichia Coli, which originate mainly in the intestines of man and other warm blooded animals, to the genera Citrobacter and Enterobacter aerogenes. The latter genera are usually found in soil but are also present in faeces in small numbers. The presence of total coliforms in water may indicate soil run-off or, more important, less recent faecal pollution since organisms of the Enterobacter-Citrobacter groups tend to survive longer in water than do members of the Escherichia Coli group, and even to multiply when suitable environmental conditions exist.

The FAECAL COLIFORM organisms are those coliform bacteria which are of intestinal origin and, therefore, are an indicator of recent faecal pollution.

Most of the coliform bacteria found by the faecal coliform test are of the genus Escherichia Coli.

The results of the examinations are reported as "MF" Coliform Count per 100 ml.

"The original objective of 2,400 coliforms per 100 ml used by the Department of Health does not allow for the wide range of

counts available from repetitive samples. Therefore, in 1970, the Ministry updated its microbiological criteria and recommended the following: "Water used for total body contact recreation can be considered impaired when the total coliform faecal coliform and/or faecal streptococcus geometric mean density exceeds 1000, 100, and/or 20 per 100 ml, respectively." The limiting criteria of 1000 total coliform organisms is also applied to surface and subsurface drains and watercourses not used for body contact recreation.

Note: The term "geometric mean" refers to a type of average. Mathematically speaking, the geometric mean of a set of N numbers is the Nth root of the product of the numbers; in practice, it is computed by the use of logarithms.

B. Biochemical Oxygen Demand (BOD)

Biochemical Oxygen Demand is reported in parts per million (ppm), and is an indication of the amount of oxygen required for the stabilization of decomposable organic matter in the water. The completion of the laboratory test requires five days under the controlled incubation temperature of 20°C.

BOD directly affects the dissolved oxygen concentrations in a watercourse and consequently must be limited to ensure an oxygen level of at least 5 ppm in a watercourse supporting warm-water biota.

C. Solids

The value for solids, expressed in parts per million, is the sum of the values for the suspended and the dissolved matter in the water. The concentration of suspended solids is generally the most significant of the solids analyses with regard to surface water quality. The effects of suspended solids in water are reflected in difficulties associated with water purification, decomposition in streams, and injury to the habitat of fish.

D. Total Kjeldahl Nitrogen

Total Kjeldahl is a measure of the total nitrogenous matter present except that measured as nitrite and nitrate nitrogens. The Total Kjeldahl, less the ammonia nitrogen, measures the organic nitrogen present. Ammonia and organic nitrogen determinations are important in determining the availability of nitrogen for biological utilization. The normal range for Total Kjeldahl would be 0.1 to 0.5 ppm.

E. Phosphorus

Phosphorus is a major element of municipal sewage as a result of the utilization of synthetic detergents. To a certain extent, phosphorus is a highly desirable element in maintaining a proper balance between plant and animal life in water. However, excessive and prolonged discharges will upset this balance and create an over-abundance of algae, weeds and nuisance organisms. Excessive growths of algae have been found developing in lakes when the average concentration of inorganic phosphorus was over 0.01 ppm.

II ABBREVIATIONS AND SYMBOLS

BOD	-	Biochemical Oxygen Demand
Susp. Solids	-	Suspended Solids
Total Kjeldahl	-	Total Kjeldahl Nitrogen
MF	-	Membrane Filter
Ch	-	32-ounce sample taken, and submitted for chemical analyses
Ba	-	6-ounce sample taken and submitted for bacteriological examination
ml	-	millilitre
ppm	-	parts per million
mgd	-	million gallons per day
gpd	-	gallons per day
gpm	-	gallons per minute
L	-	Less than
G	-	more than

APPENDIX II

SURVEY RESULTS:

FIELD OBSERVATIONS AND ANALYSES RESULTS

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET 1 A

CITY OF LONDON

OXFORD SEWERAGE AREA

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
O-1	Storm sewer-outfall at Stephens St.	30	partly submerged	½ gpm	clear	Ch-Ba	May 8 - 72 1:30	cool light rain
O-2	Storm sewer-Oxford Street, west of Sanatorium Road	48	Free flowing	10 gpm	clear	Ch-Ba	12:45	"
O-3	Storm sewer-outfall to Thames at Old Bridge Road	66	twin out-falls	30 gpm	clear	Ch-Ba	1:15	"
O-4	Storm sewer-outfall to Thames at North-west corner of Byron Bridge	15	free flowing	trickle	murky, appears to be laundry wastes	Ch-Ba	1:00	"
O-5	Storm sewer-outfall to Thames on south side in Springbank Park	15	free flowing	25 gpm	clear	Ch-Ba	1:45	"

ANALYSES RESULTS

WATER POLLUTION SURVEY

SHEET 1 - B

CITY OF LONDON

OXFORD SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
0-1		L0.5	L5	0.2	0.1	L4	560
0-2		1.8	20	0.2	0.1	9,000	18,000
0-3		L0.5	L5	0.4	L0.1	12	240
0-4		8.5	80	L0.1	0.2	3,700	129,000
0-5		L0.5	L5	0.2	L0.1	L4	L4

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

CITY OF LONDON

GREENWAY SEWERAGE AREA

SHEET: II-A

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-6	Storm sewer-outfall to Thames at foot of Georgia Road	36	free flow	trickle	clear	-	May 8-72 2:00	cool light rain
G-7	Storm sewer-outfall to Thames at Hampton Crescent	15	free flow		dry	-		"
G-8	Storm sewer-outfall to Thames at Hyde Park Road	12	free flow	30 gpm	clear	Ch-Ba	2:15	"
G-9	Storm sewer-outfall to Thames at Forest Street	12	free flow	½ gpm	clear	Ch-Ba	2:30	"
G-10	Storm sewer-outfall to surface drain at Wonderland Rd. and Eaton Park Drive	96	twin free flow	30 gpm	murky, litter	Ch-Ba	1:10	"
G-11	Storm sewer-outfall to Thames at MacKeller Avenue	24	partly submerged	0	submerged in sand	-		"
G-12	Storm sewer-outfall to Thames at Wonderland Road	48	twin free flow	40 gpm	murky, litter	Ch-Ba	1:45	"

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-6		-	-	-	-	-	-
G-7		-	-	-	-	-	-
G-8		L0.5	L5	L0.1	L0.1	14	48
G-9		L0.5	5	0.3	L0.1	16	116
G-10		1.2	20	0.2	0.1	-	900
G-11		-	-	-	-	-	-
G-12		2.0	90	0.5	0.10	-	320

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

City of London

GREENWAY SEWERAGE AREA

SHEET: 111-A

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-13	Surface Drain-Teeple Terrace in Berkshire Village		grated drain	20 gpm	clear, litter	Ch-Ba	May 8 - 72 1:25	cool light rain
G-14	Storm sewer-outfall to Thames at East Mile Road				not sampled submerged	-		"
G-15	Storm sewer-outfall to Thames at Wonderland Road				see G-12			"
G-16	Storm sewer-outfall to Thames at Warren Road	54	free flow	5 gpm	clear	Ch-Ba	3:00	"
G-17	Storm sewer-outfall to Thames at Trowbridge Avenue	12	free flow	0				"
G-18	Storm sewer Darlene Crescent	12	free flow	trickle	clear	Ch-Ba	2:05	cool light rain
G-19	Storm sewer-outfall to Thames at Hutton Road				not sampled			"
G-20	Storm sewer-outfall to Thames at Wild-wood Avenue			15 gpm	clear	Ch-Ba	4:45	"

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-13		1.0	5	0.1	L0.1	-	220
G-14		-	-	-	-	-	-
G-15		-	-	-	-	-	-
G-16		4.8	L5	0.4	0.8	4,000	35,000
G-17		-	-	-	-	-	-
G-18		5.5	110	7.7	0.4	-	15,000
G-19		-	-	-	-	-	-
G-20		9.5	10	2.4	0.8	3,500	110,000

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

CITY OF LONDON

GREENWAY SEWERAGE AREA

SHEET: IV-A

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-21a	Storm sewer-outfall to Coves at north-west corner Springbank Drive Bridge	14	partly submerged	¼ gpm	clear	Ch-Ba	May 8-72 2:25	cool light rain
G-21b	Storm sewer-outfall to Coves at south-west corner of Springbank Drive Bridge	14	free flow	¼ gpm	murky	Ch-Ba	2:30	"
G-22	Storm sewer-outfall to Coves at north-east corner of Springbank Drive Bridge	18	free flow	dry				"
G-23	Storm sewer-outfall to Coves at south-west corner of Springbank Drive				See G-21b			"
G-24	Storm sewer-outfall to Coves at Greenwood Ave.	36	free flow	12 gpm	clear, smell of sanitary sewage	Ch-Ba	May 9, 72 9:20	Sunny dry
G-25	Storm sewer-outfall to surface drain at Hazelwood Ave.	30	free flow	35 gpm	smell of sanitary sewage	Ch-Ba	May 8,72 11:30	cool light rain
G-26	Storm sewer-outfall to surface drain at Base Line Rd. and Beachwood Avenue	48	free flow	50 gpm	clear, litter	Ch-Ba	11:10	"

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-21a		10	10	4.1	0.7	-	240.000
G-21b		6.5	100	1.1	0.2	-	50.000
G-22		-	-	-	-	-	-
G-23		-	-	-	-	-	-
G-24		0.6	15	0.4	0.2	180	1.200
G-25		1.6	5	0.4	0.1	-	12.000
G-26		1.6	10	0.3	0.10	-	60.000

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

CITY OF LONDON

GREENWAY SEWERAGE AREA

SHEET: V-A

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-27	Storm sewer-outfall to surface drain at Commissioners Rd. and Viscount Road	36	free flow	$\frac{1}{n}$ gpm	murky	Ch-Ba	May 8 - 72 11:20	cool light rain
G-28	Storm sewer-Gordon Ave. at Commissioners Road				picked up by new storm sewer			"
G-29	Storm sewer-outfall to Thames at Forward Ave. & Murdock St.				not sampled			"
G-30	Storm sewer-outfall to Thames at Forward Ave. and Woodward Ave.	54	partly submerged		clear	Ch-Ba	3:30	"
G-31	Storm sewer-Barry Place	48	partly submerged	10 gpm	clear	Ch-Ba	3:50	"
G-32	Storm sewer-outfall to Coves at Springbank Dr. and Beaconsfield Avenue				submerged			"
G-33	Storm sewer-outfall to Coves at Byron Avenue				proposed but not constructed			"
G-34	Storm sewer-outfall to Coves at Elmwood Avenue	60	free flow	40 gpm	murky, evidence of sanitary sewage	Ch-Ba	May 9 - 72 9:40	sunny dry

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-27		unable to obtain result	280	2.1	0.3	-	4,800
G-28		-	-	-	-	-	-
G-29		-	-	-	-	-	-
G-30		2.2	5	1.0	0.2	2,000	70,000
G-31		1.2	5	1.0	0.2	390	3,200
G-32		-	-	-	-	-	-
G-33		-	-	-	-	-	-
G-34		22	60	14	2.9	11,000	380,000

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: VI-A

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-35	Storm sewer-outfall to coves at Elmwood Avenue	14	partly submerged	1 gpm	clear	Ch-Ba	May 9-72 9:50	sunny dry
G-36	Storm sewer-outfall to Thames at Wharncliffe Road South side	18	free flow	5 gpm	murky, surface runoff	Ch-Ba	May 8 -72 4:30	cool light rain
G-37	Storm sewer outfall to Thames at Wharncliffe Road north side	42	free flow	5 gpm	murky	Ch-Ba	4:10	""
G-117	Surface drain-Oxford St.West at CNR bridge			1 cfs	clear	CH-Ba	May 10-72 11:20	sunny dry
G-118	Storm sewer-outfall to surface drain at Oxford Street West east of London Mall	24	free flow	trickle	clear, not sampled			" ""
G-119a	Surface drain-out fall to surface drain at Oxford St. West, east of Arrow Station		free flow	15 gpm	clear	Ch-Ba	9:50	" "

ANALYSES RESULTS

WATER POLLUTION SURVEY

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-35		4.8	20	3.1	0.5	2,500	1,400,000
G-36		18	650	2.4	0.4	1,400	39,000
G-37		20	70	1.0	L0.1	1,800	90,000
G-117		3.6	L5	1.0	0.7	390	8,000
G-118		-	-	-	-	-	--
G119a		0.8	5	0.2	L0.1	28	600

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: VII-A

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-119b	Surface drain Oxford Street, West east of Arrow Station			50 gpm	clear	Ch-Ba	9:55	sunny dry
G-120	Storm sewer outfall to surface drain at Cherry-hill Circle	48 x 48	free flow	15 gpm	clear	Ch-Ba	10:25	" "

ANALYSES RESULTS

WATER POLLUTION SURVEY

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-119b		2.2	10	0.3	0.2	540	12,000
G-120			NOT ANALYZED			1,500	30,000

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: VIII-A

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-121	Storm sewer-outfall to Thames at Dundas Street	large		0	dry			sunny dry
G-122	Storm sewer-outfall to Thames at Carling St.	10	free flow	-	dry			sunny dry
G-123	Storm sewer-outfall to Thames at Rodgers Ave.,	24	free flow	trickle	fungus growth			sunny dry
G-124	Storm sewer Princess St. and Adelaide St. area				sanitary relief outlets at Mill Street		May10-72	sunny dry
G-125	Storm sewer-outfall to Thames at Blackfriars Bridge	48	free flow	0	dry and clearn			sunny dry
G-126	Storm sewer-outfall toThames at John St.	72	free flow	5 gpm	sewage fungus	Ch-Ba	11:15	sunny dry

ANALYSES RESULTS

WATER POLLUTION SURVEY

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-121		—	—	—	—	—	—
G-122		—	—	—	—	—	—
G-123		—	—	—	—	—	—
G-124		—	—	—	—	—	—
G-125		—	—	—	—	—	—
G-126		10	5	9.8	1.2	1,490	67,000

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: IX-A

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-127	Storm sewer-outfall to Thames at Mill St.	66	free flow	15 gpm	murky, foam	Ch-Ba	May 10/72 11:30	sunny dry
G-128	Storm sewer-outfall to Thames at. Piccadilly St.				not sampled concrete truck washings			sunny dry
G-129	Storm sewer-outfall to Thames at Saunby Street	18		0	dry			sunny dry
G-130	Storm sewer=Essex St. West of Wharncliffe Rd.				open ditch not sampled			sunny dry
G-131	Storm sewer-outfall to Thames River at Grosvenor St.	48	free flow	5 gpm	clear	Ch-Ba	1:45	sunny dry
G-132	Storm sewer-outfall to Thames at. Wharncliffe Rd.	12	partly submerged	trickle	clear		May 10/72	sunny dry

ANALYSES RESULTS

WATER POLLUTION SURVEY

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-127		4.6	30	1.0	0.4	700	180,000
G-128		-	--	--	--	--	--
G-129		-	---	--	--	--	--
G-130		--	--	--	--	--	--
G-131		2.0	10	0.5	0.2	800	21,000
G-132		--	--	--	--	--	--

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: X-A

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-133	Storm sewer-outfall to Thames at Victoria St.				not sampled			sunny dry
G-134	Storm sewer-outfall to Thames at Huron St. West Bank	12	free flow	2 gpm	clear, varsol smell	Ch-Ba	2:45	sunny dry
G-135	Storm sewer-outfall to Thames at the Parkway Dr.	36	free flow	½ gpm	clear	Ba		sunny dry
G-136	Storm sewer-outfall toThames at Tower Lane	24	free flow	0	dry			sunny dry
G-137	Surface drain-outfall to Thames at Parkdale Ave.		free flow	2 gpm	clear	Ch-Ba	1:30	sunny dry

ANALYSES RESULTS

WATER POLLUTION SURVEY

CITY OF LONDON

SHEET: X-B

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-133		--	--	--	--	--	--
G-134		9.0	L5	0.2	L0.1	L4	190,000
G-135		--	--	--	--	--	--
G-136		--	--	--	--	--	--
G-137		1.4	L5	0.4	0.1	L4	500

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: XI-A

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-144	Storm sewer-outfall to Medway at Windermere Road and CorleyDr.	15	free flow	0	dry		May 10/72	sunny dry
G-145	Storm sewer-outfall to Medway at Corley Dr.	15	free flow	0	dry			" "
G-146	Outfall- Ryersie Rd. and Windermere rd.				culvert not sampled			" "
G-147	Storm Sewer-outfall to Medway at Bloomfield Dr.				not sampled			" "
G-148	Surface drain- Sarnia Rd. at Bloomfield Dr.		free flow	10 gpm	clear, discharge into storm drain	Ch-Ba	10:50	" "
G-149	Storm sewer-outfall to Medway at Wychwood Place	54	partly submerged	1 gpm	clear	Ch-Ba	May 11/72 10:45	" "

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ANALYSES RESULTS

WATER POLLUTION SURVEY

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-144		--	--	--	--	--	--
G-145		--	--	--	--	--	--
G-146		--	--	--	--	--	--
G-147		--	--	--	--	--	--
G-148		1.6	20	0.4	0.5	100	60,000
G-149		2.0	5	1.0	0.3	-	1,200

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: XII-A

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-150	Storm sewer-outfall at Friars Way				not sampled			
G-151	Storm sewer-outfall at Gainsborough Rd. and HuttonRoad	66	partly submerged	5 gpm	clear, foam	Ch-Ba	1o:30	sunny dry
G-152	Storm sewer-outfall to surface drain at Yardley Place	60	free flow	5 gpm	clear	Ch-Ba	10:15	" "
G-153	Storm sewer-outfall to Thames at Richmond St.Bridge north side	30	free flow	5 gpm	clear	Ch-Ba	May 10/72 1:15	" "
G-154	Storm sewer-outfall to Thames at Richmond St. bridge South Side	12	free flow	0	dry road drain		May 11/72	sunny dry
G-155	Storm sewer-outfall to surface drain at Maitland St. and Huron Street,	30	partly submerged	1 gpm	clear	Ch-Ba	9:50	" "

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-150		--	--	--	--	--	--
G-151		2.6	5	0.2	0.2	--	1,500
G-152		0.6	L5	0.1	0.1	--	140
G-153		1.2	5	0.4	0.1	270	900
G-154		--	--	--	--	--	--
G-155		1.0	L5	L0.1	0.1	120	270

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: XIII-A

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-156	Storm sewer-outfall to surface drain at William and Huron Streets	42	partly submerged	35 gpm.	clear	Ch-Ba	10:00	sunny dry
G-157	Storm sewer-outfall at Huron and Adelaide Streets,				picked up by new storm sewer			

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-156		1.8	L5	0.1	0.1	L4	10,000
G-157		--	--	--	--	--	--

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: XIV-A

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-41	Storm sewer-outfall to Thames at York St	36	free flow	5 gpm	clear	Ch-Ba	May 9-72 9:15	sunny dry
G-42	Storm sewer outfall to Thames at Stanley Street	12	free flow	3 gpm	evidence of sanitary sewage	Ch-Ba	9:20	sunny dry
G-43	Storm sewer-outfall to Thames at Bathurst Street	36	free flow	30 gpm	murky	Ch-Ba	May 9-72 9:30	sunny dry
G-44	Storm sewer - outfall to Thames at Horton Street				not sampled			
G-45	Storm sewer - outfall to Thames atRidout St. Bridge south side	30 x 24	free flow	5 gpm	clear, foam	Ch-Ba	9:45	sunny dry
G-46	Storm sewer outfall to Thames at Richmond St. bridge	66	free flow	0	dry			" "

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-41		0.6	L5	L0.1	0.1	L4	L4
G-42		180	80	47	10	790,000	1,300,000
G-43		15	80	0.8	0.4	120	110,000
G-44		-	-	-	-	--	--
G-45		2.0	L5	0.8	0.2	11,000	340,000
G-46		--	--	--	--	--	--

FIELD OBSERVATIONS | WATER POLLUTION SURVEY | SHEET: XV-A

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-47	Storm sewer-outfall to Thames at South St. & Clarence St.	8	partly submerged	trickle	smell of sanitary sewage	Ch-Ba	May 9/72 10:15	sunny dry
G-48	Storm sewer-outfall to Thames at Carfrae Cres.				not sampled			
G-49	Storm sewer -outfall to Thames at Front St.	60	partly submerged	trickle	clear	Ch-Ba	10:30	sunny dry
G-50	Storm sewer- outfall to Thames at Colborne Street				new construction in area			sunny dry
G-51	Storm sewer-outfall to Thames at Weston Street	48	partly submerged	20 gpm	murky	Ch-Ba	11:30	sunny dry
G-52	Storm sewer-outfall to Thames at Brook-side Street		free flow storm flapgate	30 gpm	clear	CH-Ba	12:00	sunny dry

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-47		4.4	5	0.6	1,0	1,900	23,000
G-48		-	-	-	-	-	-
G-49		2.2	5	0.4	0.2	3,800	60,000
G-50		--	--	--	--	--	--
G-51		8.0	10	0.8	0.3	900	8,000
G-52		12.0	20	1.7	0.2	10,000	22,000

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: XVI-A

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-54	Storm sewer-outfall to surface drain south of Thompson Rd.	18	free flow	dry				sunny dry
G-55	Storm sewer-outfall to surface drain near railway south of Thompson Road	12	partly submerged	trickle	clear	Ch-Ba	1:20	" "
G-56	Storm sewer Leathorne Street				extended not sampled			
G-69	storm sewer outfall to Thames at north-east corner of Adelaide St. Bridge	48	free flow	3 gpm.	clear	Ch-Ba	May 9/72 1:15	sunny dry
G-70	Storm sewer outfall to Thames at Landsdowne Ave	18	free flow	3 gpm.	clear	Ch-Ba	1:00	sunny dry
G-71	Storm sewer outfall toThames at Jacqueline St.				flap gate not sampled			

ANALYSES RESULTS

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-54		-	-	-	-	-	-
G-55		SAMPLE BROKEN IN LAB. ACCIDENT				140	700
G-56		-	-	-	-	-	-
G-69		36	70	1.6	0.5	12,000	80,000
G-70		9.0	L5	0.2	0.1	L4	280
G-71		-	-	-	-	-	-

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-38	Storm Sewer Westbury Ave. and Westbury Crescent				open ditch diverted			cool light rain
G-39	Storm sewer outfall to surface drain at Wesbury Ave & Estella Dr.	72 x 48	free flow	12 gpm	murky construction nearby	Ch-Ba	12:40	" " "
G-40	Storm sewer-Westdale Avenue at Wharncliffe Road, South	several sizes	free flow	10 gpm	murky, evidence of sanitary sewage	Ch-Ba	1:00	" " "
G-59	Storm sewer-outfall to surface drain at Easy St & Southdale Rd.	8	free flow	10 gpm.	clear	Ch-Ba	May 9/72 11:30	sunny dry
G-60	Storm sewer-outfall to surface drain at Verulam St. & South dale Road	12	free flow	25 gpm	clear	Ch-Ba	11:35	sunny dry
G-61	Storm sewer-Millbank Dr.(east) at Southdale Road				new sewer			" "

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-38		-	-	-	-	-	-
G-39		5.0	40	0.8	0.20	-	370,000
G-40		14	10	8.3	3.0	0	210,000
G-59		4.4	L5	1,0	0.6	9,500	110,000
G-60		4.2	4	2.0	0.3	1,090	290,000
G-61		-	-	-	-	-	--

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: XVIII-A

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-62	Storm sewer-Downing Cres. at Southdale Road				new sewer		May 9/72	sunny dry
G-63	Storm sewer Millbank Dr. (East) at Southdale Road				new sewer			sunny dry
G-64	Surface drain Bradley Ave. and Willow Dr.			1 gpm	clear	Ch-Ba	May 9/72 11:20	sunny dry
G-65	Storm sewer Outfall to surface drainBradleyAve., near Kintail Cr.	48	free flow	10 gpm	clear, litter	Ch-Ba	10:50	sunny dry
G-66	Storm sewer-outfall to Bradley Ave. & Adelaide St.	72	free flow	35 gpm	turbid	Ch-Ba	10:40	sunny dry
G-67	Surface drain Highway 135, west of Wellington Road			1 cfs	clear	Ch-Ba	10:15	" "

ANALYSES RESULTS

WATER POLLUTION SURVEY

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-62		--	--	--	--	--	--
G-63		--	--	--	--	--	--
G-64		1.8	5	0.2	0.1	1,600	240,000
G-65		1.0	L5	0.4	0.1	120	2,900
G-66		11	330	2.1	0.2	9,000	500,000
G-67		2.0	40	0.8	0.4	190	1,300

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: XIX-A

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
G-68	Surface drain Exeter Rd. and Bessemer Rd.			1 cfs.	murky	Ch-Ba	May 9/72 10:30	sunny dry

ANALYSES RESULTS

WATER POLLUTION SURVEY

CITY OF LONDON

GREENWAY SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
G-68		3.4	20	0.4	0.3	4,900	15,000

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: XX-A

CITY OF LONDON

ADELAIDE SEWERAGE AREA

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
A-111	Storm sewer-Field north of Oxford St. at Third St.				relocated by new sewer			
A-112	Storm sewer-Cheapside at Sorrel Rd.				new sewer			
A-113	Storm sewer-Cheapside at Kaladar Dr.				new sewer			
A-138	Storm sewer-outfall to Medway at Canterbury Road	18	twin free flow	10 gpm	clear	Ch-Ba	May 10-72 3:00	sunny day
A-139	Storm sewer-outfall to surface drain at McStay Rd.	6	partly submerged	2 gpm	clear	Ch-Ba	3:15	sunny day
A-140	Storm sewer-outfall to surface drain at Hillview Blvd. and Richmond St.	36	partly submerged	5 gpm	clear	Ch-Ba	3:00	sunny day
A-141	Storm sewer-outfall to surface drain at McClure Dr.	12	free flow	10 gpm	clear	Ch-Ba	3:25	sunny day

ANALYSES RESULTS

WATER POLLUTION SURVEY

CITY OF LONDON

ADELAIDE SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
A-111		-	-	-	-	-	-
A-112		-	-	-	-	-	-
A-113		-	-	-	-	-	-
A-138		2.4	5	0.4	0.4	1,090	110,000
A-139		1.0	10	0.4	0.1	I4	I4
A-140		2.0	L5	2.0	0.2	I4	13,000
A-141		0.8	5	L0.1	L0.1	I4	310

CITY OF LONDON

ADELAIDE SEWERAGE AREA

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
A-142	Storm sewer-outfall to surface drain at Brian Avenue	12	partly submerged	trickle	clear	Ch-Ba	May 10 -72 3:45	sunny dry
A-143	Storm sewer-outfall to surface drain at Fanshawe Park Rd. west of Richmond St.	12	free flow	0	dry			"
A-158	Storm sewer-outfall to Stoneybrook at Geary Avenue	60	partly submerged	50 gpm	turbid	Ch-Ba	11:35	"
A-159	Storm sewer-Fanshawe Park Road and Penny-brook Blvd.				covered and extended			
A-160	Storm sewer-outfall to Stoneybrook at Stoneybrook Crescent	14	free flow	25 gpm	clear	Ch-Ba	11:20	"
A-161	Storm sewer-outfall to Stoneybrook at Mapledale Ave.	12	partly submerged	2 gpm	clear	Ch-Ba	2:40	"
A-162	Storm sewer-outfall to Stoneybrook at Daleview Crescent	18	partly submerged	5 gpm	murky, laundry wastes	Ch-Ba	11:25	"

CITY OF LONDON

ADELAIDE SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
A-142		0.6	5	LO.1	Lo.1	I4	120
A-143		-	-	-	-	-	-
A-158		2.2	120	0.6	0.2	800	70,000
A-159		-	-	-	-	-	-
A-160		NOT RECEIVED AT LAB.					
A-161		14	40	1.0	3.1	13,900	49,000
A-162		24	50	2.2	2.8	2,000	180,000

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

CITY OF LONDON

ADELAIDE SEWERAGE AREA

SHEET: XXII-A

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
A-163	Storm sewer-outfall to Stoneybrook at Dellmont Place	30	free flow	10 gpm	clear	Ch-Ba	May 10-72 2:10	sunny dry
A-164	Storm sewer-outfall to Stoneybrook at Lauderdale Avenue	30	free flow	10 gpm	clear	Ch-Ba	2:20	"
A-165	Storm sewer-outfall to Stoneybrook at Fanshawe Park Road	42	free flow	0	dry			"
A-166	Storm sewer-Tennet Ave. at North Vernon Avenue				new sewer			"
A-167	Storm sewer-outfall to surface drain at Glenora Drive and Glengarry Avenue	30	free flow	5 gpm	clear	Ch-Ba	1:45	"
A-168	Storm sewer-outfall to Thames at Country Lane	24	partly submerged	1 gpm	clear,black deposits	Ch-Ba	10:35	"
A-169	Storm sewer-outfall to Thames at Arbour Glen Crescent	12	free flow	0	dry			"

CITY OF LONDON

ADELAIDE SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
A-163		0.8	L5	L0.1	0.1	L4	280
A-164		2.4	L5	L0.1	0.3	280	13,000
A-165		-	-	-	-	-	-
A-166		-	-	-	-	-	-
A-167		1.2	L5	0.2	L0.1	L4	240
A-168		20	10	10	1.1	7,900	29,000
A-169		-	-	-	-	-	-

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

CITY OF LONDON

ADELAIDE SEWERAGE AREA

SHEET:XXIII-A

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
A-170	Storm sewer-outfall to Thames at Valley-view Avenue		buried in sand	trickle	clear		May 10-72	sunny dry
A-171	Storm sewer-outfall to surface drain at Victoria Street	72	partly submerged	25 gpm	murky	Ch-Ba	11:50	"
A-172	Storm sewer-outfall to surface drain at Victoria St. and Cecelia Avenue				new sewer			"
A-173	Storm sewer-outfall to surface drain at Cheapside St. and Kenwood Crescent	18	partly submerged	15 gpm	clear	Ch-Ba	1:15	"
A-174	Storm sewer-Bucke St.and Weathered St.				submerged			"
A-178	Storm sewer-outfall to surface drain at Briarhill Avenue	18	free flow	5 gpm	clear	Ch-Ba	11:10	"
A-179	Storm sewer-outfall to surface drain at Magnolia Crescent	36	free flow	1 gpm	clear	Ch-Ba	11:25	"

CITY OF LONDON

ADELAIDE SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
A-170		-	-	-	-	-	-
A-171		2.6	250	0.8	0.4	800	1,780
A-172		-	-	-	-	-	-
A-173		0.6	L5	0.1	0.1	I4	120
A-174		-	-	-	-	-	-
A-178		1.8	20	0.4	0.1	I4	130
A-179		1.2	5	0.4	0.1	290	8,000

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: XXIV-A

CITY OF LONDON

ADELAIDE SEWERAGE AREA

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
A-180	Storm sewer-outfall to surface drain at Rideau Gate	36	free flow	trickle			May 10-72	sunny dry
A-181	Same outfall as A-180							
A-182	Storm sewer-outfall to Thames at Wakefield Crescent	36	free flow	0	dry			"
A-183	Storm sewer-outfall to Thames at Benson Crescent	48	free flow	25 gpm	clear	Ch-Ba	1:00	"

CITY OF LONDON

ADELAIDE SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
A-180		-	-	-	-	-	-
A-181		-	-	-	-	-	-
A-182		-	-	-	-	-	-
A-183		0.6	L5	0.4	L0.1	L4	110

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: XXV-A

CITY OF LONDON

VAUXHALL SEWERAGE AREA

Sampling Point	Description of Sampling Point	Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
V-57	Storm sewer-outfall to surface drain at Deveron Cr. and Pond Mills Road	18	free flow	½ gpm	clear	Ch-Ba	May 9/72 1:45	sunny dry
V-58	Storm sewer-outfall to surface drain at Salvia St.	18	partly submerged	1 gpm	clear	Ch-Ba	1:25	sunny dry
V-72	Storm sewer-outfall toThames at ChesterfieldAve.				not sampled			" "
V-73	Storm sewer outfall to Thames at Chesterfield Ave. & Veronica Ave.	36	free flow	30 gpm	clear,	Ch-Ba	1:30	" "

CITY OF LONDON

VAUXHALL SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
V-57		2.8	10	0.8	0.1	L4	2,100
V-58		1.0	5	0.2	L0.1	400	1,200
V-72		-	-	-	-	-	-
V-73		32	20	10	0.1	9,600	160,000

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET XXVI-A

CITY OF LONDON

VAUXHALL SEWERAGE AREA

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
V-74	Storm sewer-outfall to Thames at Gladstone Ave.				not significant		May 9-72	sunny dry
V-75	Storm sewer-outfall to Thames at Marlborough Avenue				not existing			"
V-76	Storm sewer-outfall to Thames at King Edward Ave.	15	free flow	1 gpm	clear	Ch-Ba	1:45	"
V-77	Storm sewer-outfall to Thames at Ealing Street	24 X 18	free flow	0	clear	Ch-Ba		"
V-78	Storm sewer-outfall to Thames at Dillabough St.	8	hole in side of manhole	5 gpm	clear	Ch-Ba	2:30	"
V-79	Storm sewer-outfall to surface drain at Smith Street				not existing			
V-80	Storm sewer-outfall to Thames at Egerton Street	48	free flow	15 gpm	clear, foam	Ch-Ba	2:45	"

CITY OF LONDON

VAUXHALL SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
V-74		-	-	-	-	-	-
V-75		-	-	-	-	-	-
V-76		L0.5	L5	0.2	L0.1	L4	192
V-77		-	-	-	-	-	-
V-78		0.8	L5	0.2	L0.1	L4	16
V-79		-	-	-	-	-	-
V-80		6.5	10	1.0	0.7	9,200	60,000

CITY OF LONDON

VAUXHALL SEWERAGE AREA

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
V-81	Storm sewer-outfall to surface drain at Thompson Road	48	free flow	2 gpm	murky	Ch-Ba	May 9-72 1:45	sunny dry
V-82	Storm sewer-outfall to Thames at St. Julien Street	18 X 24	free flow	0	dry			"
V-83	Storm sewer-outfall to river at Hwy.126 northwest corner	90	free flow	10 gpm	not sampled		3:15	"
V-95	Storm sewer-outfall to Pottersburg Cr. at Stevenson Ave.	24	free flow	2 gpm	clear	Ch-Ba	May 11-72 11:05	"
V-97	Storm sewer-outfall to Pottersburg Cr. at Cronyn Cr.	18	free flow	0	dry			"
V-101	Storm sewer-outfall to Pottersburg Cr. at Beattie	30	free flow	5 gpm	clear	Ch-Ba	11:50	"
V-103	Storm sewer-outfall to Pottersburg Cr. at Dundas St. Southwest side	24	partly submerged	0	Ontario Hospital drain			"

CITY OF LONDON

VAUXHALL SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
V-81		1.0	30	1.0	0.2	4,000	4,800
V-82		-	-	-	-	-	-
V-83		-	-	-	-	-	-
V-95		7.0	5	1.2	0.6	14,500	15,000
V-97		-	-	-	-	-	-
V-101		0.8	15	0.1	0.1	14	110
V-103		-	-	-	-	-	-

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: XXVIII-A

CITY OF LONDON

VAUXHALL SEWERAGE AREA

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
V-105	Storm sewer-outfall to Pottersburg Cr. at Dundas St. northwest side	24	free flow	trickle	not sampled		May 9-72	sunny dry
V-107	Storm sewer-outfall at CPR track west of CNR junction				extended to P-106			"
V-175	Storm sewer-outfall at Curry St. and Mornington Ave.	6		0	dry		May 10-72 1:35	"
V-176	Storm sewer-outfall to surface drain at Curry St. and Connaught Ave.	12	partly submerged	0	dry		2:05	"
V-177	Storm sewer-outfall to surface drain at Connaught and Mornington Avenues	36	partly submerged	2 gpm	clear	Ch-Ba	1:50	"

CITY OF LONDON

VAUXHALL SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
V-105		-	-	-	-	-	-
V-107		-	-	-	-	-	-
V-175		-	-	-	-	-	-
V-176		-	-	-	-	-	-
V-177		1.4	5	0.4	0.1	52	500

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

CITY OF LONDON

POTTERSBURG SEWERAGE AREA

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time Sampling	Weather during Survey
P-84	Storm sewer-outfall to Thames at Meadow lily Rd. north side	60	free flow	5 gpm	clear	Ch-Ba	May 9/72 3:30	sunny
P-85	Storm sewer-outfall to Pottersburg Cr. at Hamilton Rd. northwest corner	48 X 36	free flow	trickle	clear		May 11/72 9:15	"
P-86	Storm sewer-outfall to Pottersburg Cr. at Gore Road	14	free flow	15 gpm	murky, streets being washed	Ch-Ba	9:25	"
P-87	Storm sewer-outfall surface drain at Gore Rd.	96	free flow	50 gpm	clear	Ch-Ba	9:35	"
P-88	Storm sewer-outfall to Pottersburg Cr. at Arcadia Cr.	14	free flow	10 gpm	clear	Ch-Ba	9:45	"
P-89	Storm sewer-outfall to Pottersburg Cr. at Cornerbrook Ave.	24	free flow	10 gpm	clear	Ch-Ba	9:55	"

ANALYSES RESULTS

WATER POLLUTION SURVEY

SHEET: XXIX-B

CITY OF LONDON

POTTERSBURG SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
P-84		L0.5	L5	0.2	L0.1	8,600	40,000
P-85		-	-	-	-	-	-
P-86		40	1500	5.6	1.3	L4	36,000
P-87		1.2	L5	0.4	0.1	480	110,000
P-88		0.8	L5	L0.1	L0.1	L4	120
P-89		2.0	5	0.1	0.1	L4	190

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: XXX-A

CITY OF LONDON

POTTERSBURG SEWERAGE AREA

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
P-90	Storm sewer-outfall to Pottersburg Cr. at Falcon Street	60 X 48	free flow	20 gpm	clear	Ch-Ba	May 11 -72 10:15	sunny dry
P-91	Storm sewer-south of Trafalgar and west of Falcon St.				picked up by new storm sewer			"
P-92	Storm sewer-outfall to surface drain at Balfour Place	10	free flow	trickle	clear	Ch-Ba	10:30	"
P-93	Storm sewer-outfall to surface drain in Trafalgar Road and Balfour Place	40	partly submerged	20 gpm	clear	Ch-Ba	10:40	"
P-94a	Storm sewer-outfall to Pottersburg Cr. at Trafalgar Rd., south west corner	10	partly submerged	trickle	clear	Ch-Ba	10:50	"
P-94b	Storm sewer-outfall to Pottersburg Cr. at Trafalgar Rd., south east corner	14	free flow	5 gpm	clear	Ch-Ba	11:15	:

ANALYSES RESULTS

WATER POLLUTION SURVEY

SHEET: XXX-B

CITY OF LONDON

POTTERSBURG SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
P-90		2.8	10	0.4	0.1	20	430
P-91		-	-	-	-	-	-
P-92		1.6	10	0.1	0.1	36	11,500
P-93		1.4	L5	0.1	L0.1	L4	330
P-94a		10	20	1.1	0.4	150	1,100
P-94b		1.6	L5	0.1	L0.1	120	1,200

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

SHEET: XXXI-A

CITY OF LONDON

POTTERSBURG SEWERAGE AREA

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
P-96	Surface drain-outfall to Pottersburg Cr. at Moffatt Avenue			30 gpm	clear	Ch-Ba	May 11-72 11:15	sunny dry
P-98	Storm sewer-outfall to Pottersburg Cr. at Brydges St.	30	free flow	10 gpm	clear	Ch-Ba	11:25	"
P-99	Storm sewer-outfall to Pottersburg Cr. at Kiwanis Park Rd. (Scott St.)	12	partly submerged	trickle	clear	Ch-Ba	11:40	"
P-100	Storm sewer-outfall to Pottersburg Cr. at Kiwanis Park Rd. (Churchill St.)				not existing			"
P-102	Storm sewer-outfall to Pottersburg Cr. at Allen Pl.	12	free flow	1 gpm	clear	Ch-Ba	12:40	"
P-104	Storm sewer-outfall to Pottersburg Cr. at Dundas St. southeast corner	42	partly submerged		no flow			"

CITY OF LONDON

POTTERSBURG SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
P-96		6.5	5	0.2	0.3	4,400	39,000
P-98		2.0	L5	1.0	0.4	530	370,000
P-99		0.8	10	0.1	L0.1	L4	180
P-100		-	-	-	-	-	-
P-102		3.4	L5	1.8	0.6	200	15,000
P-104		-	-	-	-	-	-

FIELD OBSERVATIONS

WATER POLLUTION SURVEY

CITY OF LONDON

POTTERSBURG SEWERAGE AREA

SHEET XXXII-A

Sampling Point	Description of Sampling Point	Size of Outfall (Inches)	Kind of Outfall	Estimated Flow	Observations	Action	Day and Time of Sampling	Weather during Survey
P-106	Storm sewer-outfall to Pottersburg Cr. at Eastown Plaza	48			not sampled		May 11-72	sunny dry
P-108	Storm sewer-outfall to Pottersburg Cr. at Spruce St.	18	free flow	0	dry			"
P-109	Storm sewer-outfall to Pottersburg Cr. at Burdick Pl.	10	free flow	trickle				"
P-110	Storm sewer-Oxford St. West, east of Third St.				no longer an outfall			
P-114	Storm sewer-outfall to Pottersburg Cr. at Clarkside Rd.	54	free flow	1 gpm	clear	Ch-Ba	12:00	"
P-115	Storm sewer-outfall to Pottersburg Cr. at Arvilla Blvd.	84	free flow	2 gpm	clear	Ch-Ba	11:45	
P-116	Storm sewer-outfall to Pottersburg Cr. at Industrial Rd.	twin	submerged		not sampled			"

CITY OF LONDON

POTTERSBURG SEWERAGE AREA

Sampling Point	Description of Sampling Point	5-Day BOD (ppm)	Susp. Solids (ppm)	Total Kjeldahl (ppm)	Total Phosphorus (ppm)	Faecal Coliform Count per 100 ml.	MF Coliform Count per 100 ml.
P-106		-	-	-	-	-	-
P-108		-	-	-	-	-	-
P-109		-	-	-	-	-	-
P-110		-	-	-	-	-	-
P-114		2.2	5	0.2	0.1	-	1,080
P-115		L0.5	L5	0.1	0.1	-	210
P-116		-	-	-	-	-	-

APPENDIX III

SEWAGE FLOWS

TABLE I

CITY OF LONDON

ADELAIDE WATER POLLUTION CONTROL PLANT

1972 SEWAGE FLOWS

MONTH	TOTAL FLOW $X10^6$	MAX. FLOW RATE $10^6/D$	MIN. FLOW RATE $10^6/D$	AVG. FLOW $10^6/D$
JANUARY	78.42	5.5	0.1	2.53
FEBRUARY	65.64	5.1	0.0	2.26
MARCH	97.91	5.6	0.0	3.16
APRIL	100.27	5.8	0.0	3.34
MAY	89.74	5.4	0.0	2.89
JUNE	76.09	5.3	0.0	2.54
JULY	74.46	5.5	0.0	2.40
AUGUST	74.37	5.6	0.0	2.40
SEPTEMBER	71.19	5.5	0.0	2.37
OCTOBER	80.82	5.5	0.0	2.61
NOVEMBER	90.64	5.5	0.0	3.02
DECEMBER	103.56	5.8	0.1	3.34
TOTAL (MG)	1,003.11	66.1	0.2	32.86
AVG (MGD)	83.59	5.5	0.0	2.74

TABLE II

CITY OF LONDON

GREENWAY WATER POLLUTION CONTROL PLANT

COMPLETE PLANT

1972 SEWAGE FLOWS

MONTH	TOTAL FLOW $X10^6$	MAX. FLOW RATE $10^6/D$	MIN. FLOW RATE $10^6/D$	AVG. FLOW $10^6/D$
JANUARY	483.55	28.7	4.4	15.61
FEBRUARY	432.09*	28.8	6.2	16.31
MARCH	513.17*	29.2	6.8	17.50
APRIL	541.89	27.9	7.2	18.07
MAY	531.11	27.4	6.3	17.13
JUNE	471.74	25.8	3.8	15.72
JULY	455.76	25.8	4.4	14.72
AUGUST	472.58*	27.7*	3.5	16.13
SEPTEMBER	456.46*	24.1*	40*	15.52
OCTOBER	528.64	29.6	5.2	17.06
NOVEMBER	581.16*	35.7*	8.2*	22.31
DECEMBER	605.95	37.0	8.1	19.87
TOTAL (MG)	6,074.10x	347.7x	68.1x	205.95
AVG (MGD)	506.18x	29.0x	5.7x	17.16

* Flow meter not operating for entire month.

x Flow meter not operating as above

TABLE III

CITY OF LONDON

GREENWAY #1 WATER POLLUTION CONTROL PLANT

1972 SEWAGE FLOWS

MONTH	TOTAL FLOW X10^3	MAX. FLOW RATE 10^6/D	MIN. FLOW RATE 10^6/D	AVG. FLOW 10^6/D
JANUARY	108.50	5.8	0.4	3.50
FEBRUARY	100.23	5.2	0.2	3.46
MARCH	118.13	6.2	0.5	3.81
APRIL	133.96	6.0	0.7	4.47
MAY	129.94	6.6	0.4	4.19
JUNE	91.24	5.4	0.2	3.04
JULY	101.59	5.6	0.5	3.28
AUGUST	117.72	6.2	1.0	3.80
SEPTEMBER	100.97	5.1	0.4	3.37
OCTOBER	109.59	6.0	0.2	3.54
NOVEMBER	112.42	5.2	1.0	3.75
DECEMBER	124.10	7.0	1.2	4.00
TOTAL (MG)	1,348.39	70.3	6.7	44.21
AVG (MGD)	112.37	5.9	0.6	3.68

TABLE 1V

CITY OF LONDON

GREENWAY #2 WATER POLLUTION CONTROL PLANT

1972 SEWAGE FLOWS

MONTH	TOTAL FLOW X10^6	MAX. FLOW RATE 10^6/D	MIN. FLOW RATE 10^6/D	AVG. FLOW 10^6/D
JANUARY	112.41	5.2	2.0	3.63
FEBRUARY	108.63	5.0	1.7	3.75
MARCH	125.21	5.4	2.1	4.04
APRIL	117.47	6.0	2.0	3.92
MAY	119.49	5.6	2.0	3.85
JUNE	112.84	4.8	1.3	3.76
JULY	109.67	5.4	1.0	3.54
AUGUST	117.55	5.8	0.5	3.79
SEPTEMBER	107.51	4.6	0.6	3.58
OCTOBER	114.74	6.0	1.2	3.70
NOVEMBER	17.58*	5.4*	1.6*	3.52
DECEMBER	94.57	5.3	1.3	3.28
TOTAL (MG)	1,257.67*	64.5	17.3	44.46
AVG (MGD)	104.81*	5.4	1.4	3.71

* Readings not taken Nov. 6 - 31 inclusive.

TABLE V

CITY OF LONDON

GREENWAY #3 - #1 TANK WATER POLLUTION CONTROL PLANT

1972 SEWAGE FLOWS

MONTH	TOTAL FLOW X10^6	MAX. FLOW RATE 10^6/D	MIN. FLOW RATE 10^6/D	AVG. FLOW 10^6/D
JANUARY	93.20	6.9	0.5	3.01
FEBRUARY	105.08	7.0	1.8	3.62
MARCH	127.36	6.8	2.4	4.11
APRIL	107.33	5.6	2.0	3.58
MAY	106.87	5.2	1.9	3.45
JUNE	102.79	5.2	0.8	3.43
JULY	94.27	4.4	1.0	3.04
AUGUST	104.64	5.2	1.0	3.38
SEPTEMBER	97.31	4.4	1.0	3.24
OCTOBER	115.60	4.8	1.5	3.73
NOVEMBER	170.65	8.3	2.1	5.69
DECEMBER	154.73	9.7	3.2	4.99
TOTAL (MG)	1,379.83	73.5	19.2	45.27
AVG (MGD)	114.99	6.1	1.6	3.77

TABLE VI

CITY OF LONDON

GREENWAY #3 - #2 TANK WATER POLLUTION CONTROL PLANT

1972 SEWAGE FLOWS

MONTH	TOTAL FLOW X10^6	MAX. FLOW RATE 10^6/D	MIN. FLOW RATE 10^6/D	AVG. FLOW 10^6/D
JANUARY	94.44	5.6	1.0	3.05
FEBRUARY	37.95*	5.6	1.5	2.71
MARCH	52.71**	5.3	0.3	2.64
APRIL	95.42	5.0	1.5	3.18
MAY	91.43	4.4	1.5	2.95
JUNE	86.22	5.2	1.0	2.87
JULY	80.79	5.2	1.0	2.61
AUGUST	87.98	5.2	1.0	2.93
SEPTEMBER	90.33	4.8x	1.5x	3.01
OCTOBER	93.57	4.8	1.3	3.02
NOVEMBER	136.02	7.0	1.8	4.53
DECEMBER	118.81	6.8	1.7	3.83
TOTAL (MG)	1,065.67	64.9	15.1	37.33
AVG (MGD)	88.81	5.4	1.3	3.11

* Flow recorder out of service from Feb. 15 - 29
** Flow not recorded: Mar. 1 - 5, Mar. 9, Mar. 14 and Mar. 21 - 24.

x M.L. Meter out of service - Sept. 18 - 25.

TABLE VII

CITY OF LONDON

GREENWAY #3 - #3 TANK WATER POLLUTION CONTROL PLANT

1972 SEWAGE FLOWS

MONTH	TOTAL FLOW X10^6	MAX. FLOW RATE 10^6/D	MIN. FLOW RATE 10^6/D	AVG. FLOW 10^6/D
JANUARY	75.00	5.2	0.5	2.42
FEBRUARY	80.20	6.0	1.0	2.77
MARCH	89.76	5.5	1.5	2.90
APRIL	87.71	5.3	1.0	2.92
MAY	83.38	5.6	0.5	2.69
JUNE	78.65	5.2	0.5	2.62
JULY	69.44	5.2	0.9	2.24
AUGUST	44.69*	5.3*	0.0*	2.23
SEPTEMBER	60.34**	5.2	0.5	2.32
OCTOBER	95.14	8.0	1.0	3.07
NOVEMBER	144.49	9.8	1.7	4.82
DECEMBER	113.74	8.2	0.7	3.67
TOTAL (MG)	1,022.54x	74.5	9.8	34.67
AVG (MGD)	85.21x	6.2	0.8	2.89

* Flow meter not operating - Aug. 21 - 31.

** Flow meter not operating - Sept.22 - 25.

x Flow meter not operating as above.

TABLE VIII

CITY OF LONDON

OXFORD WATER POLLUTION CONTROL PLANT

1972 SEWAGE FLOWS

MONTH	TOTAL FLOW X10^3	MAX. FLOW RATE 10^3/D	MIN. FLOW RATE 10^3/D	AVG. FLOW 10^3/D
JANUARY	21,124	2,000	110	681
FEBRUARY	17,054	1,560	100	588
MARCH	22,848	2,000+	120	737
APRIL	23,359	2,000	180	1,501
MAY	21,307	1,940	120	687
JUNE	19,736	2,000	120	658
JULY	18,905	2,000	80	610
AUGUST	19,154	2,000+	80	618
SEPTEMBER	19,125	2,000	100	638
OCTOBER	20,037	2,000+	100	646
NOVEMBER	17,442	2,100	140	727
DECEMBER	25,893	2,000	130	835
TOTAL (MG)	245,984	23,600	1,380	8,926
AVG (MGD)	20,499	1,967	115	744

+ - plus

TABLE IX

CITY OF LONDON

POTTERSBURG WATER POLLUTION CONTROL PLANT

COMPLETE PLANT

1972 SEWAGE FLOWS

MONTH	TOTAL FLOW $X10^6$	MAX. FLOW RATE $10^6/D$	MIN. FLOW RATE $10^6/D$	AVG. FLOW $10^6/D$
JANUARY	103.64	6.3	1.2	3.34
FEBRUARY	88.94	4.5	1.1	3.07
MARCH	124.74	7.5	1.3	4.02
APRIL	123.19	8.8	1.5	4.11
MAY	107.98	6.0	1.1	3.49
JUNE	97.17	8.0	1.2	3.24
JULY	98.30	5.6	1.0	3.17
AUGUST	104.27	7.9	1.1	3.36
SEPTEMBER	88.90	5.7	1.0	2.96
OCTOBER	90.00*	5.1*	1.0*	3.28*
NOVEMBER	129.28	6.7	1.9	4.31
DECEMBER	130.43	6.7	1.6	4.21
TOTAL (MG)	1,286.84**	78.8**	15.0**	42.56
AVG (MGD)	107.24**	6.6**	1.3**	3.55

* Flow meter not operating for entire month.

** Flow meter not operating as above.

TABLE X

CITY OF LONDON

POTTERSBURG #1 WATER POLLUTION CONTROL PLANT

1972 SEWAGE FLOWS

MONTH	TOTAL FLOW X10^6	MAX. FLOW RATE 10^6/D	MIN. FLOW RATE 10^6/D	AVG. FLOW 10^6/D
JANUARY	38.85	2.5	0.6	1.25
FEBRUARY	32.98	1.9	0.5	1.14
MARCH	48.43	3.0	0.8	1.56
APRIL	47.90	3.0	0.8	1.60
MAY	45.43	2.6	0.7	1.47
JUNE	42.89	3.0	0.8	1.43
JULY	39.75	2.2	0.8	1.28
AUGUST	42.86	2.9	0.8	1.38
SEPTEMBER	37.24	2.2	0.7	1.24
OCTOBER	41.50	2.5	0.7	1.34
NOVEMBER	46.09	2.7	0.9	1.54
DECEMBER	48.60	2.6	0.8	1.57
TOTAL (MG)	512.52	31.1	8.9	16.80
AVG (MGD)	42.71	2.6	.7	1.40

APPENDIX 1V

SEWAGE TREATMENT PLANT

EFFICIENCIES

TABLE XI

CITY OF LONDON

POTTERSBURG #2 & 3 WATER POLLUTION CONTROL PLANT

1972 SEWAGE FLOWS

MONTH	TOTAL FLOW $X10^6$	MAX. FLOW RATE $10^6/D$	MIN. FLOW RATE $10^6/D$	AVG. FLOW $10^6/D$
JANUARY	64.79	3.8	0.6	2.09
FEBRUARY	55.96	2.6	0.6	1.93
MARCH	76.31	4.5	0.5	2.46
APRIL	75.29	5.8	0.7	2.51
MAY	62.55	3.4	0.4	2.02
JUNE	54.28	5.0	0.4	1.81
JULY	58.55	3.4	0.2	1.89
AUGUST	61.41	5.0	0.3	1.98
SEPTEMBER	51.66	3.5	0.3	1.72
OCTOBER	48.50*	2.6*	0.3*	1.94*
NOVEMBER	83.19	4.0	1.0	2.77
DECEMBER	81.83	4.1	0.8	2.64
TOTAL (MG)	774.32x	47.7x	6.1x	25.76
AVG(MGD)	64.53x	4.0x	0.5x	2.15

* Total Flow meter out of operation from Oct. 18-23 incl.

x Flow meter not operating as above.

TABLE XII

CITY OF LONDON

VAUXHALL WATER POLLUTION CONTROL PLANT

1972 SEWAGE FLOWS

MONTH	TOTAL FLOW $X10^6$	MAX. FLOW RATE $10^6/D$	MIN. FLOW RATE $10^6/D$	AVG. FLOW $10^6/D$
JANUARY	98.57	7.0	0.7	3.18
FEBRUARY	12.87	4.5*	1.0	3.20
MARCH	109.24	8.4	1.3	3.52
APRIL	102.62	8.9	0.3	3.31
MAY	90.07	9.0	0.7	3.22
JUNE	26.45**	3.6**	1.3**	2.94**
JULY	-	-	-	3.10
AUGUST	-	-	-	3.10
SEPTEMBER	-	-	-	3.15
OCTOBER	74.40+	6.8+	2.0+	3.92+
NOVEMBER	124.70	7.3	2.1	4.16
DECEMBER	120.62	6.8	1.7	3.89
TOTAL (MG)	843.54x	62.3x	11.1x	40.69
AVG (MGD)	93.73x	6.9x	1.2x	3.39x

* Flow meter not working properly - Feb. 12, 13, & 14.
** Flow meter out of order - Jun. 1, 2, and 12 - 30 incl.
\- Flow Meter out of service - Aug. 1 - 31 incl. and Sept. 1 - 30 incl. and July 1 - 31 incl.
\+ Flow meter out of service Oct. 1 - 11 incl.
x Flow meter out of service on above dates.

TABLE I

CITY OF LONDON

ADELAIDE WATER POLLUTION CONTROL PLANT

1972 PLANT EFFICIENCIES

MONTH	BOD REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION	SS REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION
JAN.	142	18	87.3	215	28	87.0
FEB.	154	14	90.9	210	24	88.6
MAR.	118	10	91.5	184	16	91.3
APR.	123	17	86.2	224	24	89.3
MAY	88	14	84.1	136	22	83.8
JUNE	86	13	84.9	137	10	92.7
JULY	109	16	85.3	196	9	95.4
AUG.	93	18	80.6	156	18	88.5
SEPT.	111	35	68.5	172	44	74.4
OCT.	123	30	75.6	181	34	81.2
MOV.	101	22	78.2	180	29	83.9
DEC.	106	16	84.9	222	29	86.9
AVG.	113	19	83.2	184	24	86.9

TABLE II

CITY OF LONDON

GREENWAY WATER POLLUTION CONTROL PLANT (COMPLETE PLANT)

1972 PLANT EFFICIENCIES

MONTH	BOD REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION	SS REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION
JAN.	126	21	83.3	194	29	85.1
FEB.	143	18	87.4	204	21	89.7
MAR.	148	25	83.1	231	38	83.5
APR.	117	19	83.8	149	22	85.2
MAY	128	7	94.5	173	12	93.1
JUNE	187	12	93.6	277	14	94.9
JULY	149	7	95.3	225	10	95.6
AUG.	132	5	96.2	177	13	92.7
SEPT.	208	10	95.2	206	17	91.7
OCT.	140	8	94.3	192	18	90.6
NOV.	80	11	86.3	123	12	90.2
DEC.	93	15	83.9	140	12	91.4
AVG.	138	13	89.7	191	18	90.3

TABLE III

CITY OF LONDON

GREENWAY SEC.#1 WATER POLLUTION CONTROL PLANT

1972 PLANT EFFICIENCIES

MONTH	BOD REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION	SS REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION
JAN.	126	22	82.5	194	20	89.7
FEB.	143	20	86.0	204	17	91.7
MAR.	148	18	87.8	231	23	90.0
APR.	117	17	85.5	149	18	87.9
MAY	128	13	89.8	173	13	92.5
JUNE	187	14	92.5	277	14	94.9
JULY	149	6	96.0	225	10	95.6
AUG.	132	9	93.2	177	18	89.8
SEPT.	208	21	89.9	206	16	92.2
OCT.	140	18	87.1	192	19	90.1
NOV.	80	17	78.8	123	21	82.9
DEC.	93	16	82.1	140	13	90.7
AVG.	138	16	87.6	191	17	90.7

TABLE IV

CITY OF LONDON

GREENWAY SEC.#2 WATER POLLUTION CONTROL PLANT

1972 PLANT EFFICIENCIES

MONTH	BOD REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION	SS REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION
JAN.	224	22	90.2	337	25	92.5
FEB.	232	24	89.7	365	20	94.5
MAR.	236	21	91.1	410	26	93.7
APR.	247	21	91.5	468	22	95.3
MAY	278	12	95.7	451	14	96.9
JUNE	257	15	94.2	514	15	97.1
JULY	249	7	97.2	450	9	98.0
AUG.	228	11	95.2	385	11	97.1
SEPT.	308	21	93.2	453	18	96.0
OCT.	282	19	93.3	426	15	96.5
NOV.	222	-	-	370	-	-
DEC.	210	33	84.3	365	27	92.6
AVG.	248	19	92.3	416	20	95.5

TABLE V

CITY OF LONDON

GREENWAY SEC.#3 WATER POLLUTION CONTROL PLANT
TANK #1

1972 PLANT EFFICIENCIES

MONTH	BOD REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION	SS REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION
JAN.	224	43	80.8	337	157	53.4
FEB.	232	23	90.1	365	44	87.9
MAR.	236	19	91.9	410	23	94.4
APR.	247	12	95.1	468	20	95.7
MAY	278	10	96.4	451	17	96.2
JUNE	257	11	95.7	514	19	96.3
JULY	249	6	97.6	450	17	96.2
AUG.	228	7	96.9	385	16	95.8
SEPT.	308	14	95.5	453	19	95.8
OCT.	282	12	95.7	426	23	94.6
NOV.	222	12	94.6	370	18	95.1
DEC.	210	10	95.3	365	13	96.5
AVG.	248	15	93.8	416	32	91.5

TABLE VI

CITY OF LONDON

GREENWAY SEC. #3 WATER POLLUTION CONTROL PLANT
TANK #2

1972 PLANT EFFICIENCIES

MONTH	BOD REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION	SS REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION
JAN.	224	14	93.8	337	19	94.4
FEB.	232	15	93.5	365	20	94.5
MAR.	236	26	89.0	410	34	91.7
APR.	247	12	95.1	468	17	96.4
MAY	278	7	97.5	451	13	97.1
JUNE	257	11	95.7	514	20	96.1
JULY	249	7	97.2	450	12	97.3
AUG.	228	6	97.4	385	19	95.1
SEPT.	308	9	97.1	453	15	96.7
OCT.	282	10	96.5	426	19	95.5
NOV.	222	12	94.6	370	16	95.7
DEC.	210	11	94.8	365	16	95.6
AVG.	248	12	95.2	416	18	95.5

TABLE VII

CITY OF LONDON

GREENWAY SEC.#3 WATER POLLUTION CONTROL PLANT
TANK #3

1972 PLANT EFFICIENCIES

MONTH	BOD REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION	SS REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION
JAN.	224	21	90.6	337	50	85.2
FEB.	232	25	89.2	365	37	89.9
MAR.	236	21	91.1	410	32	92.2
APR.	247	17	93.1	468	20	95.7
MAY	278	9	96.8	451	17	96.2
JUNE	257	11	95.7	514	19	96.3
JULY	249	5	98.0	450	13	97.1
AUG.	228	7	96.9	385	20	94.8
SEPT	308	9	97.1	453	17	96.2
OCT.	282	9	96.8	426	16	96.2
NOV.	222	11	95.1	370	13	96.5
DEC.	210	8	96.2	365	9	97.5
AVG.	248	13	94.7	416	22	94.5

TABLE VIII

CITY OF LONDON

OXFORD WATER POLLUTION CONTROL PLANT

1972 PLANT EFFICIENCIES

MONTH	BOD REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION	SS REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION
JAN.	175	12	93.1	227	14	93.8
FEB.	239	17	92.9	338	17	95.0
MAR	172	10	94.2	264	11	95.8
APR.	191	10	94.8	314	9	97.1
MAY	203	10	95.1	317	12	96.2
JUNE	180	21	88.3	280	22	92.1
JULY	172	11	93.6	369	7	98.1
AUG.	185	8	95.7	277	11	96.0
SEPT.	204	10	95.1	329	15	95.4
OCT.	206	10	95.1	341	8	97.7
NOV.	173	16	90.8	305	8	97.4
DEC.	190	13	93.0	336	11	96.7
AVG.	191	12	93.5	308	12	95.9

TABLE IX

CITY OF LONDON

POTTERSBURG WATER POLLUTION CONTROL PLANT

COMPLETE PLANT

1972 PLANT EFFICIENCIES

MONTH	BOD REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION	SS REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION
JAN.	439	43	87.6	465	53	88.6
FEB.	543	50	90.8	602	63	89.5
MAR.	311	37	88.1	379	45	88.1
APR.	299	35	88.3	304	34	88.8
MAY	312	31	90.1	324	28	91.4
JUNE	346	35	89.9	425	33	92.2
JULY	319	22	93.1	499	32	93.6
AUG.	301	8	97.3	461	18	96.1
SEPT.	412	10	97.6	558	16	97.1
OCT.	385	11	97.1	582	12	97.9
NOV.	303	15	95.0	541	14	97.4
DEC.	299	31	89.6	551	25	95.5
AVG.	356	27	92.0	474	31	93.0

TABLE X

CITY OF LONDON

POTTERSBURG SEC.#1 WATER POLLUTION CONTROL PLANT

1972 PLANT EFFICIENCIES

MONTH	BOD REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION	SS REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION
JAN.	439	23	94.8	465	23	95.1
FEB.	543	38	93.0	602	36	94.0
MAR.	311	26	91.6	379	23	93.9
APR.	299	30	90.0	304	27	91.1
MAY	312	44	(85.9)90.7	324	28	91.3
JUNE	346	20	94.2	425	13	96.9
JULY	319	15	95.3	499	16	96.8
AUG.	301	16	94.7	461	16	96.5
SEPT.	412	23	(94.4)92.6	558	17	(97.0)
OCT.	385	21	(94.5)92.5	582	16	(97.3)94.0
NOV.	303	24	92.1	541	16	97.0
DEC.	299	27	90.9	551	28	94.8
AVG.	356	26	92.6	474	22	95.1

Figures in brackets are calculated from raw final sewage figures and are not the percentages which were given on the sheets. They are used in calculation of averages.

TABLE XI

CITY OF LONDON

POTTERSBURG SECS.2 & 3 WATER POLLUTION CONTROL PLANT

1972 PLANT EFFICIENCIES

MONTH	BOD REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION	SS REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION
JAN.	439	26	94.1	465	31	93.3
FEB.	543	52	90.4	602	63	89.5
MAR.	311	30	90.4	379	33	91.3
APR.	299	29	90.3	304	24	92.1
MAY	312	35	88.8	324	28	91.4
JUNE	346	28	91.9	425	40	90.6
JULY	319	17	94.7	499	17	96.6
AUG.	301	15	95.0	461	14	97.0
SEPT.	412	18	95.6	558	15	97.3
OCT.	385	20	94.8	582	19	96.7
NOV.	303	25	91.7	541	18	96.7
DEC.	299	25	91.6	551	22	96.0
AVG.	356	27	92.4	474	27	94.0

TABLE XII

CITY OF LONDON

VAUXHALL WATER POLLUTION CONTROL PLANT

1972 PLANT EFFICIENCIES

MONTH	BOD REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION	SS REMOVAL AVG. RAW	AVG. FINAL	% REDUCTION
JAN	241	14	94.2	187	17	90.9
FEB.	234	20	91.5	196	18	90.8
MAR.	179	29	83.8	170	22	87.1
APR.	191	17	91.1	144	24	83.3
MAY	156	16	89.7	116	20	82.8
JUNE	243	29	88.1	143	23	83.9
JULY	176	20	88.6	133	31	76.7
AUG.	191	31	83.8	119	35	70.6
SEPT.	178	39	78.1	139	40	70.6
OCT.	202	34	83.2	187	36	80.7
NOV.	186	24	87.1	137	32	76.6
DEC.	109	9	98.6	168	23	86.3
AVG.	191	24	88.2	153	27	81.7

APPENDIX V

INVENTORY OF RESIDENTIAL DEVELOPMENT

TABLE I

CITY OF LONDON

RESIDENTIAL DEVELOPMENT

SUMMARY OF UNITS

	ADELAIDE	GREENWAY	OXFORD	POTTERSBURG	VAUXHALL
1. APPROVED BY OMB					
Semis & Singles	323	1533	252	62	12
Row Houses	261	2643	39	16	0
Apartments	1481	4537	0	206	423
SUB-TOTAL	2000	8713	291	284	435
2. APPROVED BY COUNCIL					
Semis & Singles	254	741	119	49	0
Row Houses	0	652	40	0	0
Apartments	0	1558	0	0	0
SUB-TOTAL	254	2951	159	49	0
3. APPROVED IN PRINCIPLE					
Semis & Singles	0	0	0	0	0
Row Houses	0	200	0	0	0
Apartments	0	1532	0	0	0
SUB-TOTAL	0	1732	0	0	0
4. APPLICATIONS ON FILE					
Semis & Singles	202	5221	0	313	0
Row Houses	531	2987	116	1117	64
Apartments	810	13274	432	793	522
SUB-TOTAL	1543	21483	548	2223	586
TOTAL	3862	34878	998	2556	1021

TABLE II

CITY OF LONDON

RESIDENTIAL DEVELOPMENT

SUMMARY OF POPULATION

	ADELAIDE	GREENWAY	OXFORD	POTTERSBURG	VAUXHALL
1. APPROVED BY OMB					
Semis & Singles	1292	6132	1008	1136	1740
Row Houses	913	9250	156	56	0
Apartments	3702	11342	0	515	1087
SUB-TOTAL	5907	26724	1164	1707	2827
2. APPROVED BY COUNCIL					
Semis & Singles	1016	2964	476	196	0
Row Houses	0	2282	160	0	0
Apartments	0	3895	0	0	0
SUB-TOTAL	1016	9141	636	196	0
3. APPROVED IN PRINCIPLE					
Semis & Singles	0	0	0	0	0
Row Houses	0	700	0	0	0
Apartments	0	3830	0	0	0
SUB-TOTAL	0	4530	0	0	0
4. APPLICATIONS ON FILE					
Semis & Singles	808	20884	0	1252	0
Row Houses	1858	10454	406	3909	224
Apartments	2025	33185	1080	19825	1305
SUB-TOTAL	4691	65423	1486	24986	1529
TOTAL	11614	104918	3286	26889	4356

TABLE III

CITY OF LONDON

RESIDENTIAL DEVELOPMENT

SUMMARY OF SEWAGE FLOWS

(X 1000 gpd)

	ADELAIDE	GREENWAY	OXFORD	POTTERSBURG	VAUXHALL
1. APPROVED BY OMB					
Semis & Singles	129.2	613.2	100.8	113.6	174.0
Row Houses	91.3	925.0	15.6	5.6	0.0
Apartments	370.2	1134.2	0.0	51.5	108.7
SUB-TOTAL	590.7	2672.4	116.4	170.7	282.7
2. APPROVED BY COUNCIL					
Semis & Singles	101.6	296.4	47.6	19.6	0.0
Row Houses	0.0	228.2	16.0	0.0	0.0
Apartments	0.0	389.5	0.0	0.0	0.0
SUB-TOTAL	101.6	914.1	63.6	19.6	0.0
3. APPROVED IN PRINCIPLE					
Semis & Singles	0.0	0.0	0.0	0.0	0.0
Row Houses	0.0	70.0	0.0	0.0	0.0
Apartments	0.0	383.0	0.0	0.0	0.0
SUB-TOTAL	0.0	453.0	0.0	0.0	0.0
4. APPLICATIONS ON FILE					
Semis & Singles	80.8	2088.4	0.0	125.2	0.0
Row Houses	185.8	1045.4	40.6	390.9	22.4
Apartments	202.5	3318.5	108.0	1982.5	130.5
SUB-TOTAL	469.1	6452.3	148.6	2498.6	152.9
TOTAL	1161.4	10491.8	328.6	2688.9	435.6

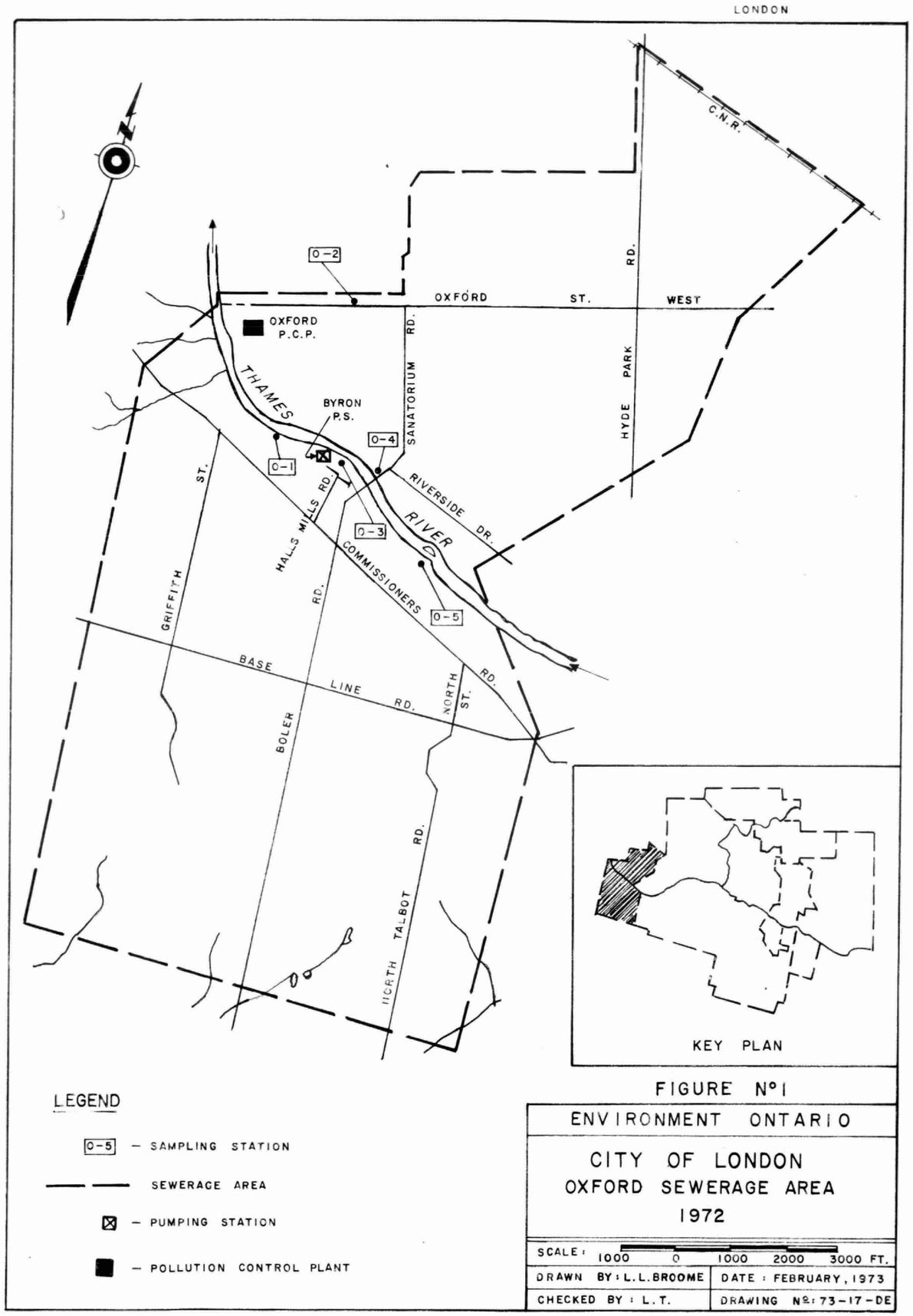
TABLE IV

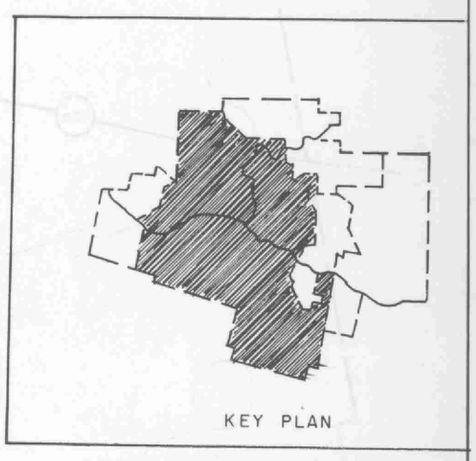
CITY OF LONDON

SUMMARY OF FUTURE SEWAGE FLOWS
(mgd)

	ADELAIDE	GREENWAY	OXFORD	POTTERSBURG	VAUXHALL
EXISTING DEVELOPMENT					
1. Design Capacity	2.00	18.30	1.50	4.00	3.50
2. 1971 Flows	2.74	17.16	0.74	3.55	3.39
3. Reserve Capacity	0.00 a	1.14 b	0.76	0.45 c	0.11
FUTURE DEVELOPMENT					
1. Approved by OMB	0.59	2.67	0.12	0.17	0.27
Reserve	-1.33	-1.53	0.64	0.28	-0.16
2. Approved by Council	0.10	0.91	0.06	0.02	0.00
Reserve	-1.43	-2.44	0.58	0.26	-0.16
3. Approved in Principle	0.00	0.45	0.00	0.00	0.00
Reserve	-1.43	-2.89	0.58	0.00	-0.16
4. Applications on File	1.16	10.49	0.33	2.69	0.44
Reserve	-2.59	-13.38	0.25	-2.43	-0.60

a-Includes .50 mgd to be directed to Greenway and Pottersburg
b-Includes .25 mgd from Adelaide and .25 from Sherwood Forest
c-Includes .25 mgd from Adelaide
- Denotes overloading


LONDON
C.N.R.
0-2
OXFORD ST. WEST
RD.
OXFORD P.C.P.
SANATORIUM RD.
HYDE PARK
THAMES
BYRON P.S.
0-4
0-1
ST.
HALLS MILLS RD.
RIVERSIDE DR.
0-3
RIVER
COMMISSIONERS RD.
0-5
GRIFFITH
BASE LINE RD.
NORTH ST.
RD.
BOLER
NORTH TALBOT RD.
KEY PLAN
LEGEND
0-5 — SAMPLING STATION
SEWERAGE AREA
— PUMPING STATION
— POLLUTION CONTROL PLANT
FIGURE Nº1
ENVIRONMENT ONTARIO
CITY OF LONDON
OXFORD SEWERAGE AREA
1972
SCALE: 1000 0 1000 2000 3000 FT.
DRAWN BY: L.L.BROOME
DATE: FEBRUARY, 1973
CHECKED BY: L.T.
DRAWING Nº: 73-17-DE



LEGEND

G-149 — SAMPLING STATION

— — — SEWERAGE AREA

⊠ — PUMPING STATION

■ — POLLUTION CONTROL PLANT

FIGURE Nº2

ENVIRONMENT ONTARIO	
CITY OF LONDON	
GREENWAY SEWERAGE AREA	
1972	
SCALE : 1000 0 1000 2000 3000 4000 5000 FT.	
DRAWN BY : L. L. BROOME	DATE : FEBRUARY, 1973
CHECKED BY :	DRAWING Nº : 73-25-DE

LONDON

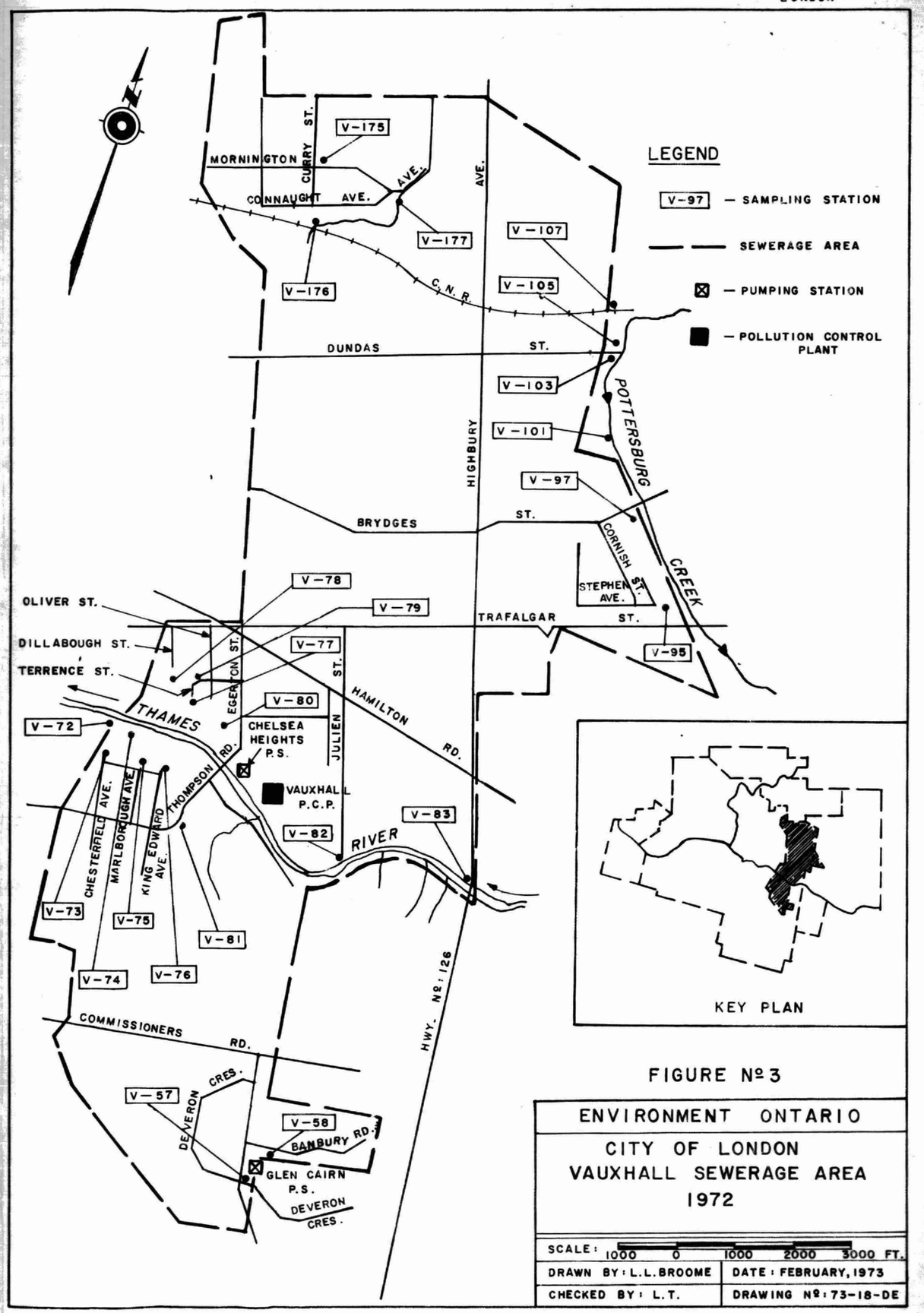
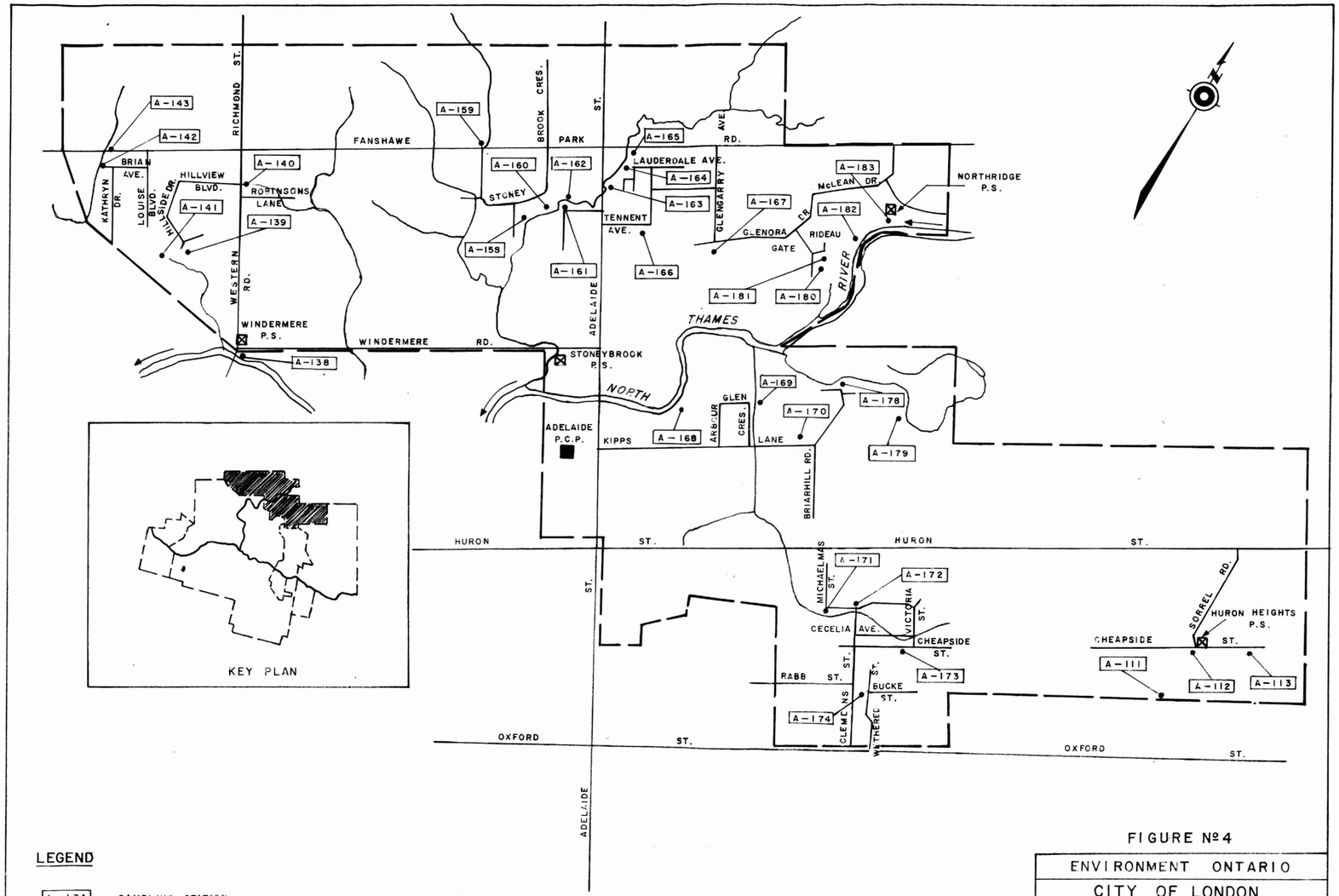


FIGURE Nº 3

ENVIRONMENT ONTARIO	
CITY OF LONDON VAUXHALL SEWERAGE AREA 1972	
SCALE: 1000 0 1000 2000 3000 FT.	
DRAWN BY: L.L. BROOME	DATE: FEBRUARY, 1973
CHECKED BY: L.T.	DRAWING Nº: 73-18-DE

LONDON



LEGEND

A-174 — SAMPLING STATION

SEWERAGE AREA

⊠ — PUMPING STATION

■ — POLLUTION CONTROL PLANT

FIGURE Nº 4

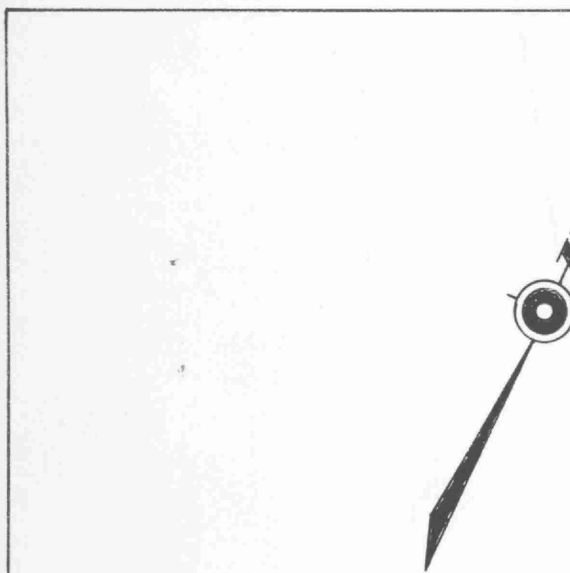
ENVIRONMENT ONTARIO

CITY OF LONDON

ADELAIDE SEWERAGE AREA

1972

SCALE: 1000 0 1000 2000 3000 FT.	
DRAWN BY: L.L. BROOME	DATE: FEBRUARY, 1973
CHECKED BY: L.T.	DRAWING Nº: 73-19-DE



ROEHAMPTON AVE.
ROEHAMPTON P.S.
OXFORD ST.
P-110
C.N.R.
CREEK
P-116
RD
POTTERSBURG
INDUSTRIAL
FIRST ST.
SECOND ST.
THIRD ST.
P-114
P-106
PARKHURST AVE.
P-115
C.P.R.
C.P.R.
P-109
DUNDAS ST.
ARVILLA BLVD.
P-108
KIWANIS PK. RD.
SPRUCE
P-104
VANCOUVER ST.
RD.
P-102
P-100
WAVELL ST.
P-99
P-98
P-96
MOFFATT AVE.
DR.
DAWN
SIDE
P-93
P-94
P-92
P-91
TRAFALGAR ST.
C.N.R.
OSPREY RD.
P-90
P-89
CLARKE
P-88
HAMILTON RD.
CREEK
P-87
P-86
FIRESTONE BLVD.
P-85
P-84
GORE RD.
POTTERSBURG P.C.P.
POTTERSBURG
C.N.R.
MEADOWLILY
THAMES
RD.
COMMISSIONERS RD.
RIVER

LEGEND

P-84 — SAMPLING STATION

— SEWERAGE AREA

— POLLUTION CONTROL PLANT

— PUMPING STATION

FIGURE Nº5

ENVIRONMENT ONTARIO

CITY OF LONDON
POTTERSBURG SEWERAGE AREA
1972

SCALE : 1000 0 1000 2000 3000 FT.

DRAWN BY : L.L. BROOME	DATE : FEBRUARY, 1973
CHECKED BY : L.T.	DRAWING Nº : 73-20-DE